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United States
Department of
Agriculture

Forest Service

Pacific
Northwest
Region

Draft Environmental Impact Statement

Gifford Pinchot and Wenatchee National Forests

White Pass Ski Area Proposed Expansion

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This Document

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Draft Environmental Impact Statement
For The Proposed Expansion of White Pass Ski Area
Wenatchee National Forest and Gifford Pinchot National Forest
Lewis and Yakima Counties in Washington

Proposed Action and Location: White Pass Ski Area

Naches Ranger District
Wenatchee National Forest
Yakima County, Washington

and

Packwood Ranger District
Gifford Pinchot National Forest
Lewis County, Washington

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Abstract

This Draft Environmental Impact Statement (DEIS) is prepared in response to an expansion request by White Pass Company. Ten alternatives, including the "No Action," are considered in this DEIS. Seven alternatives consider different arrangements of winter development, from the present capacity of 2,500 skiers to a level of 4,500 skiers. Three alternatives consider summer recreation strategies.

This document presents the results of the enviromental analysis of alternative ways of managing the White Pass area. Implementation of the development schedule hinges on the demand for skiing. Projected growth in winter sports activities indicates this proposal should be viable for a 15-20 year period.

Comments: Responses must be postmarked by: AUGUST 31, 1989.

Send Responses to:

Forest Supervisor
Wenatchee National Forest
P.O. Box 811
Wenatchee, Washington 98807

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Thank you

JUNE 1989

WHITE PASS SKI AREA PROPOSED EXPANSION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

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SUMMARY

PURPOSE AND NEED FOR ACTION - CHAPTER I

INTRODUCTION

This Draft Environmental Impact Statement (DEIS) is prepared in response to White Pass Company Inc.'s application for expansion of the White Pass Ski Area. Its purpose is to provide the information required to evaluate the potential for expansion of skiing and other recreation opportunities at White Pass; to present a range of alternatives (from No Action to the company's proposal); to assist in making a decision on whether to amend White Pass Company's Special Use Permit to include additional area; and, to provide a framework to carry out this decision.

BACKGROUND

Development of the White Pass area for winter sports was first discussed in the Snoqualmie National Forest Report, "Recreation Plan, Randle-Yakima Highway Unit, Tieton-Clear Lake Section," in 1948. The highway was completed in 1950 and in 1953 the White Pass Winter Sports Area was under development by the Yakima Valley Ski Club. White Pass Company began operation in 1955. Initial facilities included rope tows, a platter lift, and a day lodge. Chair Lift 1 to the top of Pigtail Peak, elevation 6,000 feet, was added in 1956. Successful summer operations started in 1957. Since then White Pass Company has mainly concentrated on slope grooming and improved base facilities to enhance user satisfaction. Few new facilities have been built. Chair Lift 2 was added parallel to the first chair lift in 1958, Chair Lift 3 added in the lower base area in 1964, and Chair :Lift 4 built in 1984. The day lodge burned in November, 1959 and had to be rebuilt. It was then expanded and remodeled in 1988 and extensive work has been done on the sewer system.

Interest in cross-country skiing at White Pass began in the late 1970's. This use has continued to the present time. In 1984, 15 kilometers of groomed trails were developed on the north side of Highway 12, and are operated by White Pass Company. Backcountry nordic skiing is becoming increasingly popular in Hogback Basin and the other basins to the south. Chair Lifts 1 and 2 have made access to these areas easy for skiers.

The White Pass Company began planning for expansion in 1961 and in 1966 made a request to expand into Hogback Basin. A major planning effort was initiated in 1978, with the Master Plan being completed in May,1979.

The Wilderness Act of 1964 (PL 88-577) had incorporated the Goat Rocks Wild Area into the Wilderness Preservation System as the Goat Rocks Wilderness. This precluded White Pass

Company's expansion to the south because the Wilderness boundary was within 1,000 feet of Pigtail Peak.

In an unprecedented action in the 1984 Washington State Wilderness Act [PL 98-339], Congress withdrew 800 acres in the Hogback Basin area from Wilderness designation. [See Figure S-9, p.S-27.] The Congressional Record for this act includes the following statement:

> The 800 acres deleted from the existing Goat Rocks Wilderness have significant potential for ski development and should be managed by the Secretary of Agriculture to utilize this potential in accordance with applicable laws, rules, and regulations.

White Pass Company had originally requested removing 2,400 acres from the Wilderness (Hogback and Miriam Basins). Congress added 23,000 new acres to the Wilderness and deleted the 800 of Hogback Basin. With this action, that portion of the White Pass Company's Master Plan became available for study. In 1985, White Pass Company received a permit from the Forest Service to study 1,300 acres for possible expansion, the 800-acre Hogback Basin area, and 500 acres already outside the Wilderness down to Knuppenburg Lake.

THE PROPOSAL

White Pass Company, Inc., proposes to add four chair lifts, two in the upper Hogback Ridge Basin, one at lower elevation starting 1/4 mile from Knuppenburg Lake on Highway 12, and Chair Lift 8 in the existing area. This would add those 1,300 acres to the present development.

The proposal also includes building a mid-mountain warming hut to provide on-slope restroom and day lodge services. Base Area facilities and services would also be added to keep all services in balance. No additional on-site overnight accommodations are proposed.

Many alpine skiers are seeking high quality, short skiing vacations lasting two to four days. Today, many Washington State skiers go out of state for these mini vacations. They also want dependable snow conditions, runs with a vertical drop of more than 2,000 feet, uncrowded surroundings and modern facilities.

White Pass Company's primary reasons for expansion are: (a) to continue to provide quality skiing for present skiers; (b) to be able to meet the demands of additional skiers; and, (c) to become more competitive and to capture a greater share of the Washington State skier market. These goals would be accomplished by adding lifts and facilities, providing more and a better variety of skiing terrain, providing high-quality,.uncrowded skiing opportunities, and providing nordic skiing opportunities.

Kevin McCarthy, Manager, White Pass Company, makes the following observation:

> If we combine facts, we may see a trend to understand the skiing habits of Washington State skiers. Washington has more resident skiers than all western states aside from California and Colorado. Yet during a span from 1968—1985 Washington State skier visits only increased from 1,530,000 skier visits to 1,700,000 skier visits annually, while the total for all western U.S. states grew from 8,250,000 visits in 1968 to 23,720,000 skier visits in 1985. It is also a well-accepted fact that the number of skiers living in the State of Washington has increased appreciably since 1968 due to at least

two main facts: a much greater population base of the state, and the continued high interest in the sport of skiing throughout this time frame. So where do the people ski? Other western states! And why? Because of the tremendous growth in available ski facilities. Therefore, it is the belief of White Pass Company that there are sufficient skiers in the State of Washington to support an expanded ski facility at White Pass, and that an expanded facility at White Pass will provide the skiing experience that Washington skiers are experiencing at resorts in other western states.

Some nordic skiers, especially those who enjoy the present unique setting of Hogback Basin, oppose expansion and added lifts. These skiers want to retain the current opportunities for experiencing isolation, independence, closeness to nature and self-reliance in a high-elevation, alpine setting — with easy access from Chair Lifts 1 and 2.

THE EIS PROCESS

White Pass Company's application was received and an Environmental Assessment (EA) was initiated in 1985. The draft EA was completed in 1988. The Forest Service and interested parties raised several questions. During the review of this draft EA the Forest Service decided that, due to the controversy generated and because the application proposed development in what was previously Wilderness, an Environmental Impact Statement would be required to examine a range of alternatives in greater depth and to intensify the public review.

This scoping period generated 197 responses. A Forest Service Interdisciplinary (ID) Team evaluated and analyzed these and the 200 responses from the previous Environmental Assessment action. From the analysis the team developed the list of issues, concerns and opportunities addressed in this DEIS. This list was then used to formulate "Comparison Criteria" for selecting a preferred alternative.

This EIS describes the affected environment in the White Pass Company's proposed expansion; identifies ten feasible alternatives including full development as proposed and the No Action (No Change) alternative; and, displays the environmental consequences of implementing each alternative. Three of these are summer management strategy alternatives.

Public response and comments to the DEIS are requested. These comments will be evaluated, analyzed and summarized. Revisions and modifications will be made to address this public response. Then a Final Environmental Impact Statement (FEIS) will be published. The material in the FEIS will lead to a decision. The decision to be made is, which of the seven winter alternatives in this EIS (Alternatives 1—7) and which summer management strategy (Alternatives 8—10) will be implemented. More than one alternative (for winter and for summer) will be selected and published in a "Record of Decision" attached to the FEIS.

Preparation of an EIS is one step in the planning process. Other decisions to be made by the Forest Service as a result of the analysis in this EIS and other information involve whether National Forest System lands should be used for the requested activity and, if so, with what constraints. If a decision is made to issue a Special Use Permit, other steps will be required before any development can occur.

If an alternative is selected which permits skiing expansion, the Forest Service would issue an amendment to the current Special Use Permit to White Pass Company, Inc., but would require the Company to agree to conduct the expansion in accordance with the "Record of Decision," and to have the financial capability to accomplish the expansion.

This amendment to the permit would also require White Pass Company to prepare a detailed Site Development Plan, including a Development Schedule, to be approved by the Forest Supervisor, showing locations and construction details, and application of mitigation measures. Each construction activity would require an engineering technical report and/or a site-specific analysis for the project. If evidence is found of impacts that might be greater than estimated in the FEIS there would be ample opportunity to require further mitigation or, in an extreme case, not allow the project.

After approval of the permits and acceptance of the detailed plans, the requirements established by the Forest Service would be monitored through annual operating plans that White Pass Company would submit to the Forest Service for approval.

ALTERNATIVES - CHAPTER II

BASIC ASSUMPTIONS

Several assumptions were made in the planning process. They apply to all alternatives:

1. Sufficient skier demand exists to warrant further examination of proposed alpine skiing facilities and also expansion of nordic skiing opportunities. With additional facilities or opportunities provided, increased skier visits are expected.
2. Interest in developing and expanding skiing at White Pass will not diminish. Skiers desire expanded opportunities. White Pass Company wants to provide a quality skiing experience and to be more competitive in the skiing marketplace. Pressures for expansion will continue.
3. White Pass Company is financially able to proceed with additional ski development. The Company is an acceptable permittee and will be allowed to continue as permittee.

MAJOR ISSUES

The ID Team used the analysis of the public responses to develop criteria for measuring impacts, to develop mitigation measures, and to formulate alternatives so each of the issues raised in the responses would be satisfactorily resolved in at least one of the alternatives analyzed.

The ID Team further synthesized this list of Issues, Concerns and Opportunities into five areas to be used as Comparison Criteria for rating the alternatives. These are:

1. Additional Recreation Opportunities
   Display the possibility of providing the appropriate mix of recreation activities (including alpine and nordic skiing) in the immediate areas as well as in surrounding areas. Consider supply/demand, and summer and winter activities. The goal is to

provide for a variety of activities in desired settings to the point that user-group conflicts can be resolved and other management objectives can be achieved.

2. Unique Setting
   Identify the unique elements of the Hogback Basin setting. Measure the effects of each alternative on these elements.
3. Physical and Biological Effects
   Identify the potential effects on the physical and biological environment. Assume mitigation measures are in place and display the expected consequences for each alternative.
4. Wilderness Impacts
   Identify potential impacts of each alternative on Wilderness, especially on the Shoe Lake and Miriam Basin areas. Wilderness parameters will be used to display these effects, i.e., visitor days/visits, numbers of encounters, levels of acceptable change, etc. Summer and winter impacts will be considered.
5. Displaced Backcountry Skiers
   Identify the amount of displacement that would occur with each alternative. Assess the effects of this displacement.

ALTERNATIVES IN DETAIL

Ten alternatives are analyzed in this EIS. Seven display the winter activities and development alternatives and three show different summer management strategies. These alternatives are designed to provide a variety of choices for further development at White Pass: for alpine skiing, for nordic skiing, and for summer recreation.

The alternatives are summarized as follows:

Alternative 1 — No Action (No Change).

Alternative 2 — Improvements and Modifications of Existing Permit Area.

Alternative 3 — Add Chair Lift 7.

Alternative 4 — Add Chair Lift 5 and Mid-Mountain Warming Hut.

Alternative 5 — Add Chair Lifts 5 and 6 and Mid-Mountain Warming Hut.

Alternative 6 — Add Chair Lifts 5 and 7 and Mid-Mountain Warming Hut.

Alternative 7 — Add Chair Lifts 5, 6 and 7 and Mid-Mountain Warming Hut.

Alternative 8 — Summer Management With No Change.(No Action).

Alternative 9 — Summer Management With Recreation Use Constrained to Meet Wilderness Objectives.

Alternative 10 — Summer Management to Enhance Recreation Opportunities Outside Wilderness, While Protecting Wilderness Values.

Alternatives are designed to balance support facilities with comfortable capacity. Mitigation measures designed to reduce or minimize adverse effects are incorporated into each alternative.

The alternatives are depicted in Figures II-1 through II-10. Detailed data for each alternative are listed in Tables II-1 through II-10. [See pp. S-34 through S-53.]

PREFERRED ALTERNATIVE

The combination of alternatives the Forest Service prefers is:

Alternative 2 - Improvements and Modifications of Existing Permit Area,

Alternative 7 - Add Chair Lifts 5, 6 and 7 and Mid-Mountain Warming Hut, and

Alternative 10(S) - Summer Management to Enhance Recreation Opportunities.

AFFECTED ENVIRONMENT - CHAPTER III

LOCATION

White Pass is a year-round recreation area at the crest of the Cascade Mountains in south-central Washington State within the boundaries of the Wenatchee and Gifford Pinchot National Forests. Two Wildernesses, the Goat Rocks and the William O. Douglas, are accessible from White Pass and the Pacific Crest National Scenic Trail passes through the area. Recreation facilities managed by the U.S. Forest Service near the pass include White Pass Campground, Knuppenburg Lake Picnic Area, a Pacific Crest Trail trailhead and the White Pass Horse Camp.

SOILS

Three distinct geomorphic land types based on terrain and underlying geologic materials have been described

A. Upper basins (including Hogback Basin)
Gentle slopes; underlain by basalt; poorly drained.

B. Cliff area (midslope, 4,500—4,800 ft.)
Steep slopes; rock outcrops; underlain by basalt.

C. Lower slopes (below cliff line)
Gentle to moderate slopes; soils deeply weathered, sedimentary material; drainage well developed.

Slope failures occur mainly in the steep cliff formations and those associated with concentrated surface runoff and springs.

Generally the soils at the White Pass Ski Area and the areas proposed for expansion are stable but subject to moderate to severe surface erosion once the protective duff and vegetation layer is removed. They can be difficult to revegetate depending on site-specific climatic and fertility conditions.

WATER

The study area is situated on the crest of the Cascade Mountains. The western portion lies in the Millridge Creek and, ultimately, the Cowlitz River drainage. The eastern part in the Clear Creek and the Tieton River drainages. Several springs are found flowing out of the slopes above the ski area base facilities at the geologic contact between very old sedimentary rocks and young overlying volcanics.

Water quality data specifically for the streams at White Pass are not available. However, water quality for the streams emanating from the area is high. All surface waters issuing from national Forests are designated as Class AA (extraordinary) by the State of Washington Department of Ecology (WAC 173-201-070).

The two lakes in the study area could be impacted from activities at the White Pass Ski Area, Leech Lake and Knuppenburg Lake. Both lie downstream from and very near the ski area (Leech is within White Pass Company's northern permit area). Knuppenburg Lake is fed by Millridge Creek, whose source is in the existing and proposed expansion areas. Leech Lake is fed by intermittent streams with their sources on the slopes of the ski area.

Eutrophication of Leech Lake has been a concern at least since 1966. Eutrophication is a natural process that results in increased productivity of plant growth in a lake with reduced ability to decompose the material. At Leech Lake reed vegetation has grown into the lake to such a degree that it is difficult to navigate a small boat.

One potential source of loading at Leech Lake could be sewage effluent from existing businesses and condominiums near it percolating through the soils into the lake. Another possible cause is a drop in the level of the lake. At this time it is unknown whether eutrophication in Leech lake is simply a natural process or if it has been accelerated by development.

WILDLIFE AND FISH

Habitat in the study area ranges from thick coniferous forests to subalpine, with an array of riparian areas, natural openings such as meadows, and talus slopes. Wildlife communities are rich and diverse.

Individual wildlife species of concern are the threatened, endangered and sensitive species and the big game animals.

The Hogback Basin area is mountain goat summer range. Goats are frequently sighted in this area and evidence of use can be observed. Prime summer habitat and known heavy use areas occur away from the project area to the north, south and west. The impact of the existing summer activities that might have already displaced goats to other areas is unknown, but it is felt to be insignificant based on current use, and sightings of the animals. Winter range is often the limiting factor controlling goat populations. Winter use in the project area is non-existent or insignificant.

Roosevelt elk and black-tail deer inhabit the project area for summer range only. The limiting factor overall for deer and elk herds is winter range. The Yakima Indian Nation is concerned with big game impacts in relation to this project although their concerns are not site-specific.

One federally listed threatened species, the bald eagle, and one federally listed endangered species, the peregrine falcon, have been sighted in nearby areas. Forest species being considered for federal listing are the Larch Mountain salamander, Townsend's big-eared bat, the California wolverine, and the North American lynx. Species listed by the Washington State as threatened or sensitive include the northern spotted owl, the Larch Mountain salamander and Townsend's big-eared bat.

Eagles might use the area for foraging in the late summer and fall when nesting is complete, and small rodents and mammals are present, but there is no prey base during the majority of the season. This type of habitat is not a limiting factor.

There are no known sightings of Peregrine falcons in the project area, though they have been sighted to the south in the Goat Rocks Wilderness. Nesting in the study area is unlikely since snow carries over into the spring nesting season. Suitable nesting habitat consists of large, vertical, open rocky faces that are readily accessible by the birds. Suitable habitat occurs in the Upper Cowlitz River valley and on the east side of the Cascades. The only possible use of the project area by falcons might be for foraging in the late season or pre-winter, and foraging habitat is not a limiting factor for these birds..

The northern spotted owl typically utilizes old-growth timber stands and mature forests similar to the ones found in the northern portion of the proposed expansion area. However, research has shown that owls generally inhabit areas below 4000 feet. The lowest portion of the project area is approximately 4100 feet, near Knuppenburg Lake. In addition, this terrain has a northerly aspect which further decreases the likelihood of the presence of owls during the winter. A report on survey results was completed in July, 1987 by Wendell Oliver, Wildlife Consultant, which indicated there was no use of the area by spotted owls. The pass vicinity most likely serves as a corridor for interaction of east- and west-side populations, which is important in maintaining their genetic diversity.

The Larch Mountain salamander relies on talus slopes composed of small rocks. It has a strong preference for steep slopes of lava talus and prefers a dense canopy cover with sparse ground vegetation. Until recently, the Columbia River Gorge was thought to be the sole habitat for this species, however, it has also been found at the 2970-foot elevation near Packwood. The presence of this species in the project area is unlikely.

Caves are essential to the Townsend's big-eared bat. The primary limiting factor is caused by disturbances of its cave hibernation and roosting habitat. There are no known caves in the project area. If the area is used by the bats for night foraging, impacts on the species would be minimal.

The California wolverine and the North American lynx are frequently found in high elevation forests near timberline. There are no known sightings of these predators in or around the project area. If their use of the area were to occur, the primary impacts on them would be from additional human presence in the summer. However, given their wide ranges, this impact would be negligible.

Resident fisheries occur in Knuppenburg Lake and Leech Lake. Both are stocked fisheries maintained by the Department of Wildlife. Threats to these fisheries would be from pollution from sewage disposal and from sedimentation caused by accelerated surface erosion.

VEGETATION

Three basic ecological settings exist in the proposed ski expansion area. The first is the steep, dense, timbered slope that parallels the highway west of the White Pass facilities. This plant community is characterized by old-growth western hemlock, Engelmann spruce , Pacific silver fir and Alaska yellow cedar. Many of the more mature trees are over 400 years old. There is a great deal of decadence, fires have played an infrequent role, and windthrow and snow breakage are the major disturbances. Shallow soil and rock outcrops are common.

The second ecological setting is subalpine, with atolls of stunted subalpine fir, mountain hemlock, and openings of sedge, red mountain heath and huckleberry. This unique area has been characterized as open glades among clumps of stunted trees. The harshness of the environmental conditions, such as heavy snow accumulation, high winds with blowing ice, re-radiation, insolation, short growing season and snow creep, make tree life a struggle for survival. The groups of trees (atolls) shelter the young seedlings from the harshness. An atoll expands until snow creep or windthrow brings it down. This process of ecological succession is very slow. This ecosystem is a fragile environment.

The third ecological setting, along the upper Hogback Ridge, consists of a low shrub/forb layer of sedge, red mountain heath, grouse whortleberry and scattered clumps of Krumholz (stunted) subalpine fir and mountain hemlock and white-bark pine. This plant community is very sensitive to disturbance; it remains evident for a long time due to the vegetation's slow growth.

A plant survey by Dr. William W. Barker, Professor of Botany at Central Washington University, resulted in the following conclusion:

> A thorough survey of the area proposed for the expansion of the White Pass Ski Area was conducted during June and July of 1987. No plants listed as endangered, threatened or sensitive in the June 1987 listing of such plants, published by the Washington Natural Heritage Program, were located in the course of the survey.

The only merchantable timber stands potentially involved in the study area are in the first ecological setting. These are the old, mature stands of Pacific silver fir and western hemlock. Stand data is limited but are estimated to be typically 18-22 inches in diameter at breast height, 100-240 years old (majority about 120) and an average net volume of 35 thousand board feet per acre.

SOCIAL AND ECONOMIC

Many of the local population are descendants of original settlers in the area, people working in the timber industry, or people who have retired to the area. Another segment of the population are those who have recently acquired recreational property for second homes or cabins. Many people are attracted to the rural, low-key lifestyle and the year-round recreational opportunities.

In the past the economic base of the community was tied primarily to the timber industry and local mills. In recent years the service industry has become a more dominant economic influence. The importance of this industry should continue to increase in the future, making the local economy less dependent on the timber industry.

The service industry is geared toward the recreational needs of the part-time residents, as well as people travelling through the area. It typically involves restaurants, motels, gas stations, grocery stores, and specialty stores. The industry is relatively strong year-round, though a distinct low cycle does occur in the winter. April and May are the lowest time for recreational activities. The peak for the service industry is in the summer, traditionally in July and August.

Attitudes toward the growth of the service industry vary. Generally, the business people are in favor of the trend, and so are others who benefit from the increased services. However, many members of the traditional population are opposed to the shift.

VISUAL RESOURCES

The current condition of visual resources has been modified by the existing development. This is especially evident on the existing, heavily-groomed lower slopes that are completely denuded of trees. The portions of the area that contain dense, unmodified timber stands have a low capability to absorb visual changes (Low Visual Absorption Capability). Any clearing or activity would be visible and an obvious change in the natural environment.

Visual Quality Objectives (VQO) are based on management objectives for an area, its distance from viewpoints, its visual character, and the significance of its scenic characteristics.

The primary viewpoints for the study area are from Highway 12, from the Pacific Crest Trail, especially as it enters the Goat Rocks Wilderness, and from the William O. Douglas Wilderness. The characteristic landscape is a continuous uniform stand of conifers at the lower elevations which changes at upper elevations (e.g., Hogback Basin) to scattered, thin clumps of trees with glades and other openings.

The main visual objective for design consideration is to protect and enhance the natural landscape while accommodating skiing and related activities. This can be done by blending constructed alterations into the natural, established landscape in a way that achieves harmony during all seasons of the year. Another objective is to emphasize the natural setting in order to introduce the public to the more rustic resource-based recreation opportunities.

WILDERNESS

Two wildernesses are involved in the study area, The William O. Douglas Wilderness to the north of the highway and the Goat Rocks Wilderness south of the ski area. The majority of Wilderness impacts would be within the Miriam and Shoe Lake basins of the Goat Rocks Wilderness.

User data is incomplete but local estimates indicate the present summer use in this area is about 1,200 visits per season and in an increasing trend. In the proposed Forest Plan the area would be managed with a "Transition" classification with these objectives:

Capacity.......................... 15 Recreation Visitor days/acre/year
Average Encounters .... 8 parties/day
Camps Visible................. 3

Shoe Lake presents the most intensely used and managed Wilderness lake on the Naches Ranger District. It is within the 1964 legislated Goat Rocks Wilderness but was managed before as a designated Wild Area. Interviews indicate that by the late 1940's Shoe Lake Basin was heavily impacted by recreationists. This condition persisted into the 1970's, contributed to, no doubt, by increases national popularity of backpacking, increased public interest in the Pacific Crest Trail, and increased access to the area from the White Pass highway.

In response to more stringent Wilderness standards Shoe Lake was closed to camping and campfires around 1972. Two lake shore revegetation projects were accomplished. Informal monitoring between 1979 and 1986 seemed to indicate the shore was making a comeback. Present plans are centered around continued enforcement of restrictions and maintenance of revegetated plots.

Chair lift contributions to Goat Rocks use is not specifically known. No doubt user patterns at Shoe Lake would be different without the easy access provided by the lift. The chair ride is a special experience in itself and contributes to a very desirable day hike with open views, easy grade and an attractive destination. To date, effects on Wilderness associated with operation of the chair lift have been manageable and within acceptable limits.

CULTURAL RESOURCES

Two archaeological reconnaissance surveys by Jacqueline M. Cook and Guy F. Moura located no historic or archaeological sites in the area proposed for expansion. Their conclusions included:

No archaeological sites were located in the project area. This does not negate the possibility of their existence. It does indicate that if sites do occur they are indeed not in abundance.

It is reasonable to assume the project area was utilized in the normal course of the seasonal round cycle in both pre-historic and historic times. The area abounds with flora such as huckleberries and mosses, and fauna such as mountain goats, elk and deer. Also, McClure is asserting there is an obsidian source for tool production. At this point in time, there is no physical evidence in the project area to confirm usage.

The Yakima Indian Nation has expressed concern about the expansion of White Pass Ski Area into Hogback Basin. Technically, the Hogback Basin Area, being west of the Cascade Crest, is outside of the lands ceded to the Yakima Indians in the 1855 treaty with them. It is within the traditional territory of the Taidnapum, or upper Cowlitz, tribes. Use of the Goat Rocks area by the Taidnapum is well documented by Jacobs (1934). Traditional use of the general area by the Yakima as well as the Taidnapum and is recognized, however, though present use is minimal.

Yakima Indian tribal members have said that there are burial sites in the Hogback Basin and that the basin was a retreat area for Chief Kamiakin during the Yakima Indian War. They have also indicated in general terms that all of the mountains surrounding White Pass were used for burial grounds and there are bones and other evidence of historical occupation throughout the area.

Further conversations indicated the Kamiakin Band probably used the general area from the Goat Rocks north, and may have used Hogback Basin.

RECREATION

White pass is a popular year-round recreation area. Recreation opportunities there vary due to setting, activity and experience opportunity, all of which differ from winter to summer.

WINTER RECREATION

A wide variety of skiers presently enjoy the White Pass area. This includes both alpine and nordic skiers and a full range of experience levels. Further, some are seeking special or unique settings.

Alpine skier attendance has increased very little at White Pass during the last 20 years, averaging about 100,000 per year. Approximately 80% of the total attendance occurs on weekends and holidays, with an average weekend day use of 1,524 skiers.

The White Pass Company administers approximately 15 Kilometers (9.3 miles) of groomed, double-tracked, nordic ski trails on the north side of the highway. These facilities are well-known in nordic skiing circles and are considered by many to be premier facilities. During the 1988 Christmas season, an estimated 2,500 skiers used this system. There are no industry standards for determining capacity of nordic trail systems, but skiers have described the trails as being crowded.

Currently there are no marked, non-groomed nordic trails in the study area. However skiers use the area north of the Pass in the William O. Douglas Wilderness to Sand lake, the area around Dog Lake, and the Yellow Jacket Road System.

Three types of backcountry nordic ski use occur in the White Pass area. Very few people in the extended touring category leave from the Ski Area, though they pass through the study area on their way to destinations to the north in the William O. Douglas Wilderness and to the south in the Goat Rocks Wilderness. both telemark and day-touring backcountry skiers use the ski lift system to reach the top of the Ski Area. From there they travel to their selected areas, telemarkers to the headwalls and day tourers to the upper basins.

Winter recreation activities are summarized in the following figures.

FIGURE S-1, ALPINE SKIING ATTENDANCE TREND

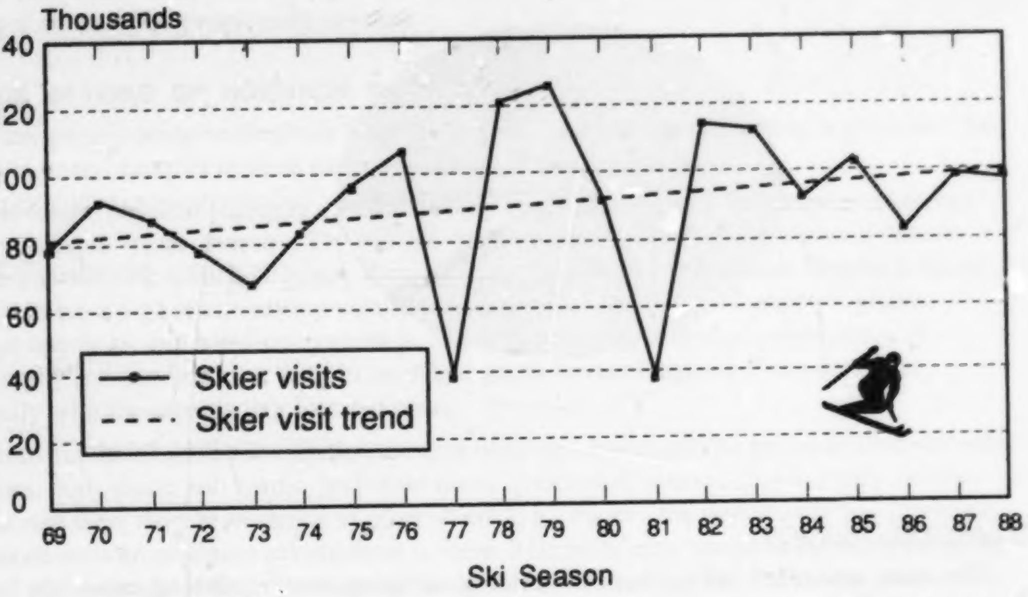


FIGURE S-2, NORDIC SKIING ATTENDANCE TREND

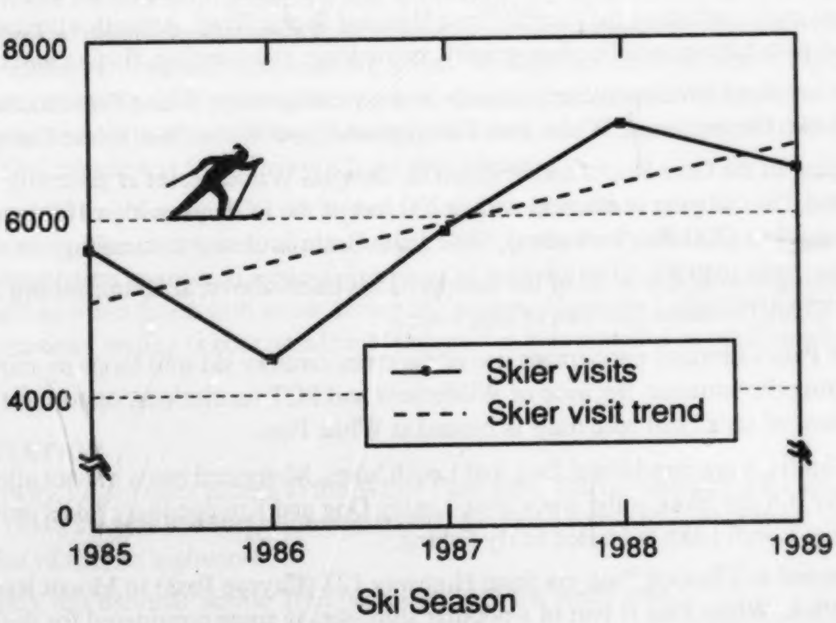
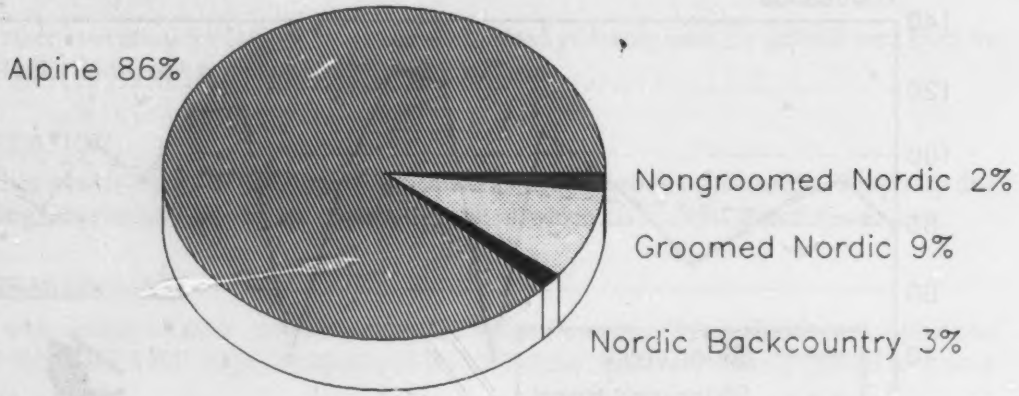


FIGURE S-3, SKI AREA USE BY SKIER TYPE



SUMMER RECREATION

The study area offers hiking, horseback riding, camping, boating, fishing, mountain biking, chairlift rides and general sight-seeing, photography and enjoyment of the outdoors in a mountainous setting. Following is short discussion of specific recreational activities available at White Pass.

There is hiking in the Goat Rocks and William O. Douglas Wildernesses on several maintained trails, including the Pacific Crest National Scenic Trail. Activities typically associated with hiking include photography, picnicking, sight-seeing, fishing and camping.

There are three developed campgrounds in the vicinity of the White Pass Ski Area. They are Dog Lake Campground, White Pass Campground, and White Pass Horse Camp.

Camping in the Goat Rocks and William O. Douglas Wildernesses is generally unrestricted. No camping is allowed within 200 feet of the PCT nor within 100 feet of Wilderness lakes (200 feet for horses). Shoe Lake Basin is closed to camping.

Picnicking is available at all of the campgrounds listed above, at Knuppenburg Lake, and at the Clear Creek Overlook just east of Dog Lake.

White Pass Company encourages use of the cross-country ski trail loops by mountain bikers during the summer. Because of Wilderness and PCT restrictions, opportunities for development of additional bike trails is limited at White Pass.

Boat landings are provided at Dog and Leech lakes. Motorized boats are not allowed on Leech Lake. Of the lakes in the study area, Leech, Dog and Knuppenburg lakes provide the best fishing. Leech Lake is limited to fly fishing.

Connected to Chinook Pass via State Highway 123 (Cayuse Pass) in Mount Rainier National Park, White Pass is part of a popular sight-seeing route considered for designation as a Scenic Byway.

Summer operation of the chair lift at White pass began in 1957 and has continued. The 45-minute ride offers users outstanding views of Mt. Rainier and adjacent Wilderness. Use averages about 4,000 people each summer.

UNIQUE SETTING OF HOGBACK BASIN

Many people perceive Hogback Basin as important and unique. Its setting is examined for both winter and summer in three parts: physical, social and managerial.

The winter physical setting is a predominantly unmodified natural landscape of moderate size and unique visual diversity. The full 360-degree scene holds dramatic views of Mount Rainier, Mount Adams and Hogback Ridge and the Goat Rocks Wilderness. Hogback Ridge and Basin are a high alpine setting with rich diversity in open, natural meadows, glades, angular openings, and snow-covered trees. The area possesses a special combination of topography and accessibility. With its open and gentle terrain Hogback Basin contrasts distinctly with the surrounding forested areas.

From the social setting standpoint, the area offers an opportunity to get away from crowds of skiers, both alpine and nordic, and other users. Interaction with other skiers may be low, and though there may be evidence of other skiers (e.g., tracks), the opportunity to experience untracked snow in an alpine environment is there. Relatively easy access to the basin using the present ski lifts make it socially more usable than if the White Pass Ski Area were not present. Spring skiing is characterized by deep, long-lasting snow with plenty of sunshine.

From the managerial standpoint, in this setting users have relatively little feeling of controls and restrictions.

Hogback Basin's winter setting offers a high probability of experiencing isolation from the sights and sounds of others, independence, closeness to nature, tranquility, and self-reliance on one's own winter survival and nordic skiing skills. Though this semi-primitive experience, in a high-elevation setting with a panoramic view of mountain peaks and Wilderness, is somewhat moderated by its accessibility from chairlifts, this ease of access is part of the area's uniqueness. This situation is found in very few other places.

The opportunity to get away from the sights and sounds of humans may be even greater during the summer. The setting is similar to winter. The meadows are full of a lush variety of low-growing vegetation contrasted against groupings of sub-alpine fir. Distant clear cuts are not as dominant as when filled with snow during the winter. However, while magnificent and beautiful, the summer setting is not considered "unique," as it is matched in other nearby alpine locations.

TRANSPORTATION

U.S. Highway 12 provides access to the White Pass area. Traffic counters indicate peak winter traffic flows are less than peak summer traffic. Accident summaries indicate an accident rate double that of similar highways.

The Pacific Crest national Scenic Trail passes through the study area.

BASE AREA AND SUPPORT FACILITIES

The Day Lodge has recently been expanded and now is about 20,000 square feet. This includes approximately 6,000 square feet of restaurant seating. The Ski View Restaurant, across the highway from the Day Lodge, has an additional 850 square feet of restaurant and bar seating.

Other base area facilities include the Yakima and Olympia Ski Clubs buildings (3000 square feet each), the Krackerbarrel service station and grocery store (2,200 sq. ft.), and the Village Inn Condominiums. Service facilities include a single family residence for the Mountain Manager, a shop building, a garage, and lift terminal structures.

Parking currently covers approximately 9 acres, primarily along Highway 12 (1,000 vehicles) and in parking lots adjacent to the condominiums (250 vehicles).

Wastewater disposal at the Ski Area consists of several independent systems under the jurisdiction of the Yakima County Health District. The day lodge is served by a 15,850-gallon septic tank for the men's restroom and the kitchen, an 8,150-gallon septic tank for the women's restroom and 16,000 square-feet of drain field. It appears that the present septic tank is adequate to handle the maximum 24-hour flow and the current peak use.

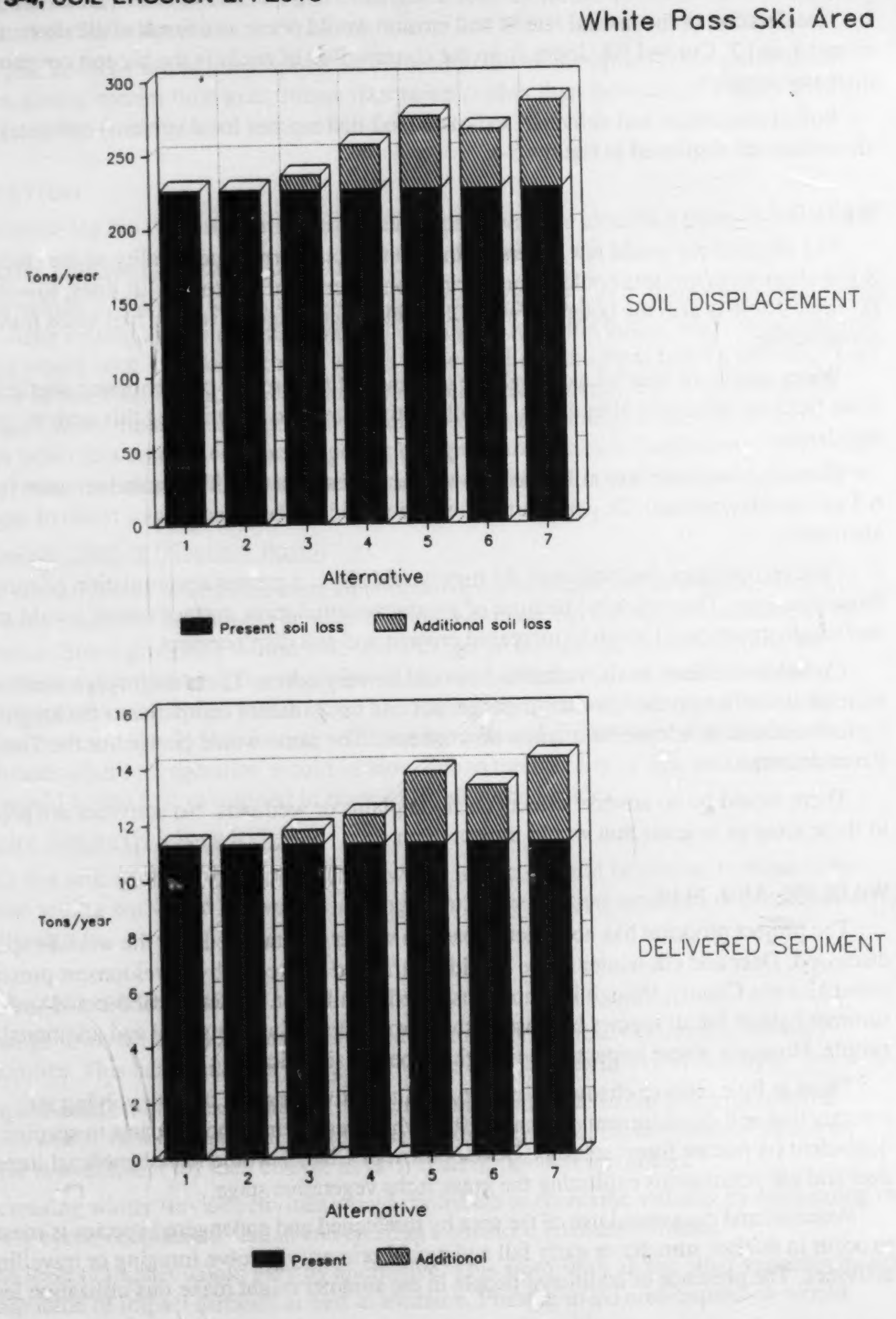
The condominiums, restaurant and service station/grocery in White pass Village use a common 12,900-gallon septic tank, with effluent piped across Highway 12 to a drain field near the eastern boundary of the permit area. The system was built in 1965 to the standards of that year. The total wastewater produced by the condominiums and the restaurant on a peak use winter weekend is estimated to be 10,210 gpd. Capacity (using present standards of a 1.5 day detention time) is 8,600 gpd. This indicates the system is operating at 133% of capacity by current standards on peak winter use days.

On-site lodging is available at the Village Inn Condominiums, where 47 rooms are reserved for overnight use by skiers. Weekend occupancy during the winter is 80 percent, weekday occupancy about 19%. Additional lodging is available at Packwood, 25 miles to the west, where 87 rooms are available. Twenty miles east in the Rimrock/Trout Lodge area there are 34 rooms available. And the Yakima metropolitan area 50 miles east counts 1600 rooms for overnight use.

ENVIRONMENTAL CONSEQUENCES - CHAPTER IV

Implementation of any of the alternatives results in some physical and biological effects. This section focuses on areas or resources where impacts are actually expected. It is not intended to be an all-inclusive summary of the discussion in Chapter IV of the DEIS of the environmental consequences. Mitigation measures intended to eliminate or reduce adverse impacts and to implement positive effects are detailed in Chapter II of the DEIS

FIGURE S-4, SOIL EROSION EFFECTS



SOILS

Acceleration of the natural rate of soil erosion would occur as a result of all alternatives except 1 and 2. Cut and fill slopes from the construction of roads is the biggest contributor to increased erosion.

Soil displacement and delivered sediment (soil that reaches local streams) estimates by alternative are displayed in figures S-x.

WATER

The alternatives would not adversely impact the long-term water quality of the study area. Some short-term impacts could occur during construction of the roads, lift lines, towers and ski runs. There is also the potential with all development alternatives for fuel spills during construction.

Water quality of Leech Lake might be improved if the present condominium septic tank and drain field are adversely affecting it. All alternatives provide for bringing this system up to standards.

Consumptive water use at White Pass would increase as use of the area increases (about 6.3 gallons/day/person). Downstream water use would not be affected as a result of any alternative.

Created openings for roads and ski runs would allow a greater accumulation of snow in those openings. Theoretically, because of greater accumulation, surface runoff would increase and this increase could result in increased erosion and soil displacement.

Cumulative effects to the watersheds would be very minor. There might be a small minor incremental effect on the Cowlitz drainage, but one insignificant compared to the logging, agricultural and development impacts downstream. The same would be true for the Tieton River drainage.

There would be no adverse effects on flood plains or wetlands. No activities are proposed in these areas or in areas that would impact them.

WILDLIFE AND FISH

The project proposal has no direct impact on winter habitat needs for the wildlife species discussed. Deer and elk winter range would be affected indirectly by development pressure in eastern Lewis County, though it is not considered significant. Minor impacts could occur on summer habitat for all species because of the introduction of a hiking trail and additional people. However, these impacts are thought to be not significant.

There is little relative change in impacts by alternatives, except those involving the construction and development of Chair Lift 7, which results in minor impacts to species dependent on mature forest settings. Development of Chair 7 would have beneficial impacts to deer and elk populations exploiting the grass/forbs vegetative stage.

Potential and occasional use of the area by threatened and endangered species is most likely to occur in the late summer or early fall and would primarily involve foraging or travelling activities. The presence of additional people in the summer might make this utilization less frequent. However, these threatened and endangered species would not be adversely impacted by the proposed development.

The phased-in nature of the proposal would tend to lessen disruption from construction activities, giving species time to acclimate themselves, rather than face major changes all at one time.

VEGETATION

Implementing the various alternatives would impact the three identified plant communities:

Heavily Timbered Slopes of Old-Growth Trees

Alternatives 3, 6 and 7, which include construction of Chair Lift 7, would have the greatest impact. After cutting the ski runs the potential of windthrow to the timber edges would be real. The runs would need to be kept at right angles to the saddle in the pass, and the openings kept as narrow as possible. Opening these runs would spill a great quantity of cold air from the upper basin down the treeless slopes. The result would be an increase in the plants that compete better in a cold environment, such as beargrass and Cascade huckleberry. The dwarf bramble, rusty menziesia and Alaska huckleberry would most likely be eliminated from these openings.

Subalpine Setting (Hogback Basin)

The consequences of implementing an alternative for development in Hogback Basin (4, 5, 6 or 7) have mainly to do with the acreage of snow groomed and the significance of ground disturbance. Snow grooming would hold snow longer in the spring, thus shortening the growing season for the low-lying vegetation. Cascade huckleberry, red mountain-heath, smooth woodrush, and sedge would begin to successfully dominate the open glades. Big huckleberry would slowly lose its competitive edge. Ground disturbance would create an environment.where revegetation would be slow due to the fragility of this area's ecosystem. Sedge would be the first to respond in revegetated disturbed places.

Alpine Setting (Hogback Ridge)

This is a setting of low shrubs and forbs where impacts would be similar to those in the subalpine setting but would be even more long-term. Revegetation would be extremely slow and difficult.

SOCIAL AND ECONOMIC

Change toward a service-industry-oriented community is already occurring in local communities. This has resulted in rising land values and changes in overall lifestyle.

Implementation of an expansion alternative would contribute to these changes. Some residents would view this as positive, some as negative. Overall, the community seems to favor (or is indifferent to) such change as no formal opposition has arisen.

Increasing winter service activities would contribute to economic stability by eliminating the relatively cyclic economic situation and creating a balanced business climate.

The level of impact would vary by alternative. This along with all the other variables makes the magnitude of impact difficult at best to measure. Phasing in ski area expansion would spread most impacts out over time. Tools are available for local governments to foresee these changes, and to avoid or mitigate negative impacts such as the costs of additional public services.

Expansion of the Ski Area would make the area more marketable during all seasons. This would even out summer and winter demands on services. If summer demand continues its current growth alone, the service industry might grow anyway to meet this need, and incidentally be able to meet an increased winter need. In either case, the cumulative effect could be a full-season community, with a changed lifestyle, dependent on the service industry.

VISUAL RESOURCES

About 315 acres of forest cover have been cleared for the existing development. an additional 70 acres of old-growth forest could be cleared with this proposal.

Alternatives that include construction of Chair Lift 7 (3, 6 and 7) would have the greatest impact on visual resources. This area is primarily within the foreground of U.S. 12 and has a Visual Quality Objective of Retention. It also has a Low Visual Absorption Capability.

Clearing for the lift line, ski runs and access road for Chair Lift 7 would add lines and alter colors in the characteristic landscape of uniform, dense, mature timber. These changes cannot be fully mitigated. To the extent possible, however, impacts would be reduced by feathering the edges of the clearings and by painting structures and hardware colors that blend with the landscape. Landscape architect's skills would be utilized when designing clearings.

The visual impact of activities taking place in Hogback Basin are only significant as viewed from sections of the PCT. There would be very little clearing needed for ski runs in the Basin due to the natural openness that presently exists. The most significant vegetation disturbance would take place with the construction of the catchline road and the service road to the mid-mountain warming hut. These clearings would be viewed downhill by trail users and, due to the oblique angle of the view and the distance, would be mostly screened by existing foreground vegetation. The lift towers, cables and the presence of skiers would be the most significant visual impacts within Hogback Basin. These impacts cannot be fully mitigated.

Due to the distance and the angle as viewed from the William O. Douglas Wilderness, activities in the Hogback Basin would be unobtrusive to the Wilderness visitor.

WILDERNESS

Alternatives would affect Wilderness to varying degrees depending on several factors. Actions which affect adjacent Wilderness are those which increase use beyond normal levels, physically impact facilities, result in changes to the natural environment, or decrease the public's opportunity for pristine types of recreation, unique scenery or scientific, historic or educational experiences.

The summary, by alternatives of Wilderness impacts to the Miriam and Shoe Lake basins of the Goat Rocks Wilderness, is included at the end of this section.

CULTURAL RESOURCES

The environmental consequences of any of the alternatives on the cultural and spiritual aspects involved in the proposed development area, become a philosophical issue. The cultural surveys conducted by a professional archaeologist under contract to the White Pass Company failed to discover any site-specific evidence of Native American use of the area. These surveys and record searches were reviewed by professional Forest Service Archaeologists and were found to be accurate and thorough.

Members of the Cultural Committee of the Yakima Indian Nation indicated their main concern was that any development from Rimrock Reservoir to White Pass would adversely effect the area's cultural and spiritual meaning and its naturalness, and would tend to bring more use to the area. This use will continue to grow with or without additional development and will tend to cause additional impact on the boundaries of the Yakima Indian Reservation. They have said that there are burial sites in the Hogback Basin and that the Basin was a retreat area for Chief Kamiakin during the Yakima Indian War. They also indicated in general terms that all of the mountains surrounding White Pass were used for burial grounds and there are bones and other evidence of historical occupation throughout the area.

Analysis indicates that Alternatives 7 and 10(S) would have, potentially, the most effect on the cultural and spiritual aspects of the area while the other alternatives would have less. Unless specific archaeological evidence is found between the writing of this DEIS and the FEIS, cultural values may no longer be an issue. We may then focus on the long-standing controversy between the Indian Nations and Public Land Managers regarding development.

RECREATION

Recreation effects by alternative are summarized at the end of this section.

TRANSPORTATION - HIGHWAY

With full development the design capacity of Highway 12 would be exceeded during peak use periods. This would result in traffic congestion and delays. However, the WDOT indicated that, since this is primarily a recreation highway, these delays are acceptable.

BASE AREA AND SUPPORT FACILITIES

Base and support facilities would be expanded as needed so they remain in balance with increased use. These increments are shown in the characteristics of each alternative, Tables II-1 through II-10 (pp. S-34, ff.).

The condominium drain field requires reconstruction, which is planned for 1989. Work planned includes repair and replacement of the original clay tile drain field with a state-of-the-art drain field. The condominium system would be enlarged as necessary to meet today's higher EPA and State of Washington DSHS standards.

PUBLIC SAFETY

As areas are added and developed and as skier use increases, the ski patrol would also expand to meet the increased need. These activities include treatment of accidents, avalanche control, search and rescue, and public information on skier courtesy. This is included in the operating plans and costs for White Pass Company.

Management of the ski area boundary becomes more important should expansion occur in Hogback Basin. Specifically, the boundary between the top of proposed lifts 5 and 6 and the Miriam Creek Basin would require either being roped and/or signed and/or having entry points.The "White Pass Ski Area Boundary Management Guidelines" would be implemented with approval of any of the expansion alternatives. These guidelines would reduce exposure of skiers to avalanche hazard adjacent to the ski area, reduce the possibility of skiers inadvertently leaving the area and becoming lost, and yet allow a reasonable degree of opportunity for a backcountry skiing experience.

COMPARISON OF ALTERNATIVES

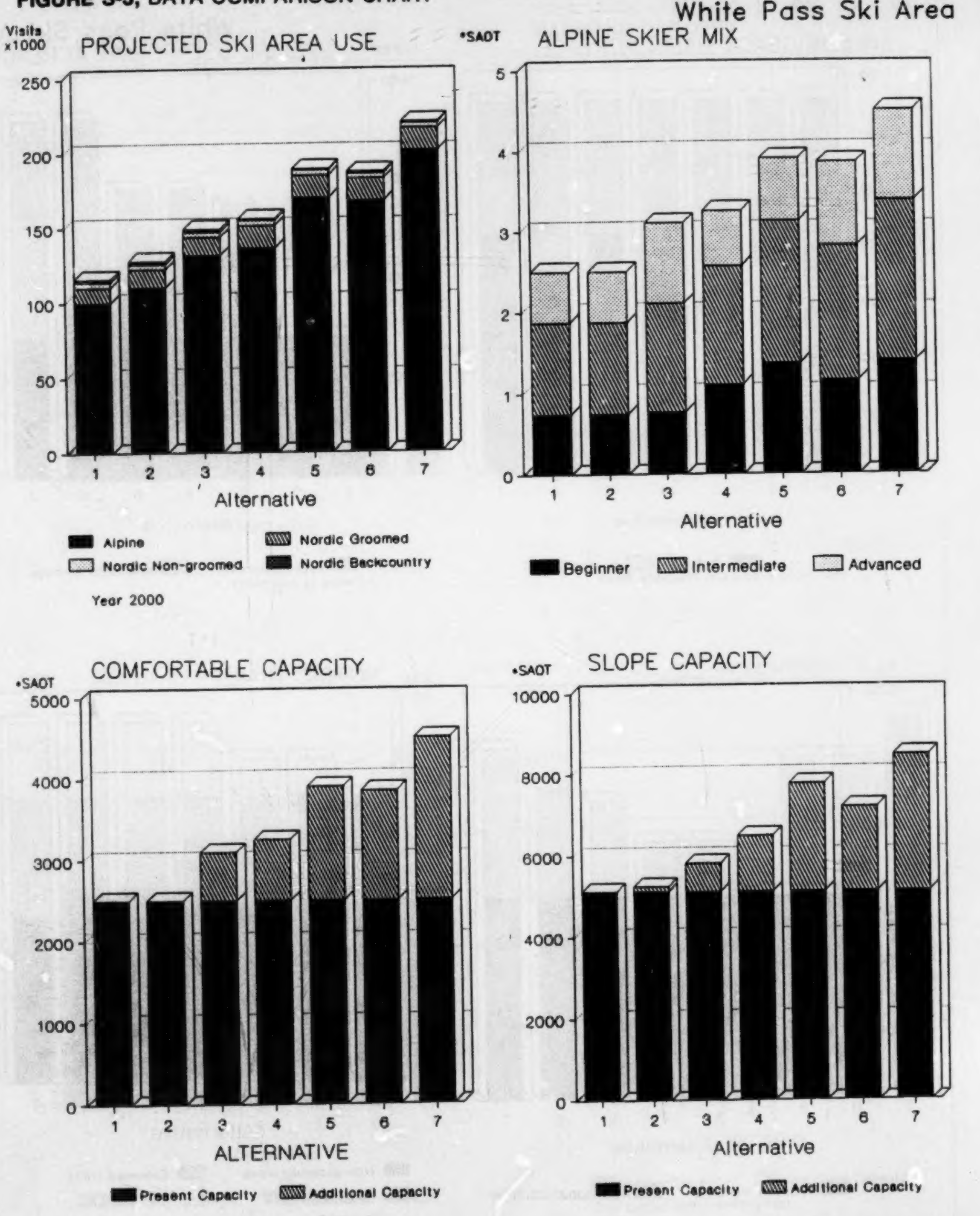
DATA CHARTS

The Figures following display graphically data from the Comparison Criteria below and from the Characteristics by Alternative tables, Chapter II and.pp. S-34, ff. Figures S-9 and S-10 on pages S-27, 28 (Wilderness Boundary Revisions and Backcountry Skiing Areas) follow the data charts.

COMPARISON CRITERIA

Comparison Criteria were developed to evaluate the effects of each alternative on the major issues concerns and opportunities identified during the scoping process. The environmental consequences of these Criteria are presented in Chapter IV. The tables following the comparison of data charts summarize the effects of the alternatives using these Comparison Criteria. (See pp. S-29 through S-32.)

FIGURE S-5, DATA COMPARISON CHART



*Skiers at one time

FIGURE S-6, DATA COMPARISON CHART

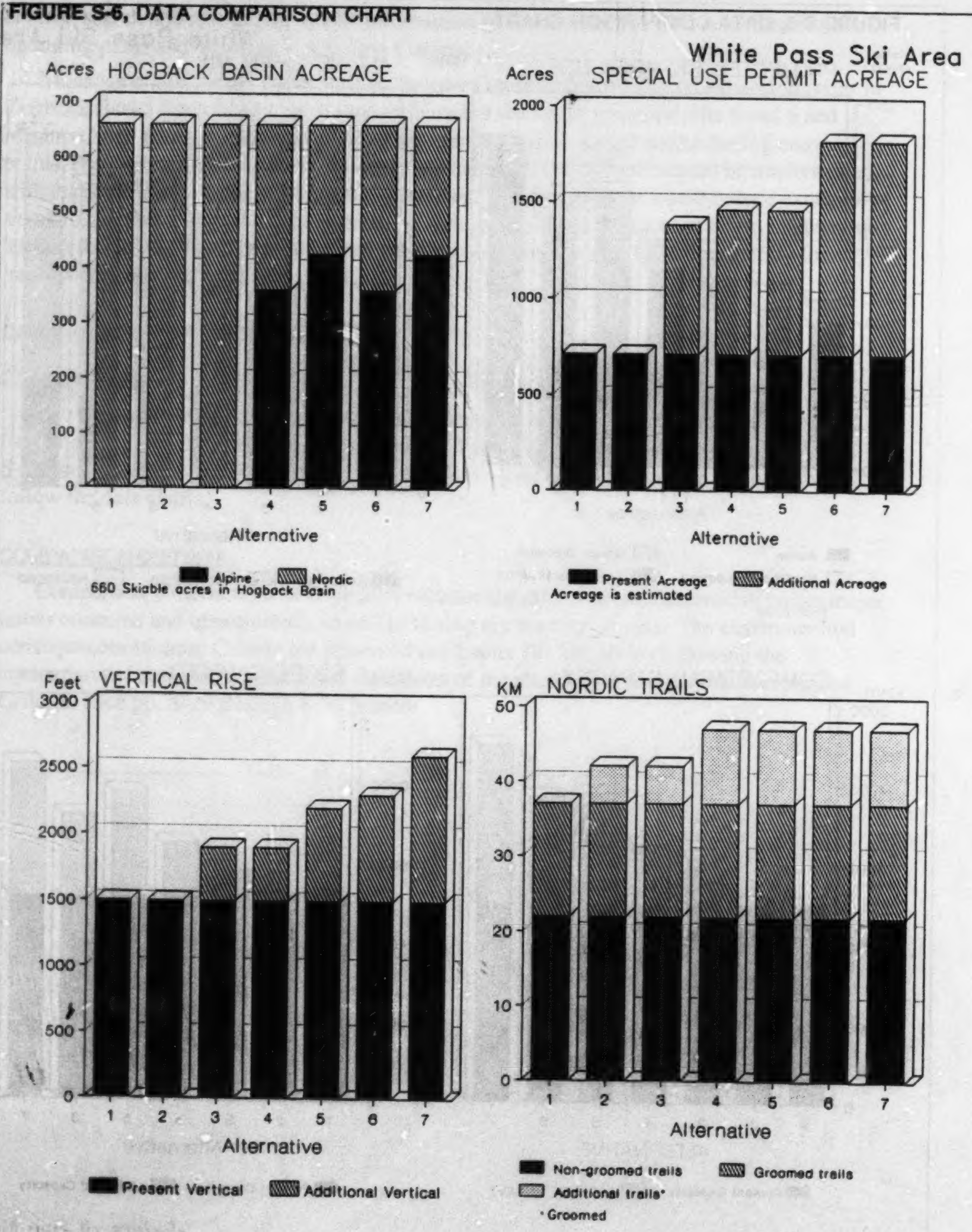


FIGURE S-7, DATA COMPARISON CHART

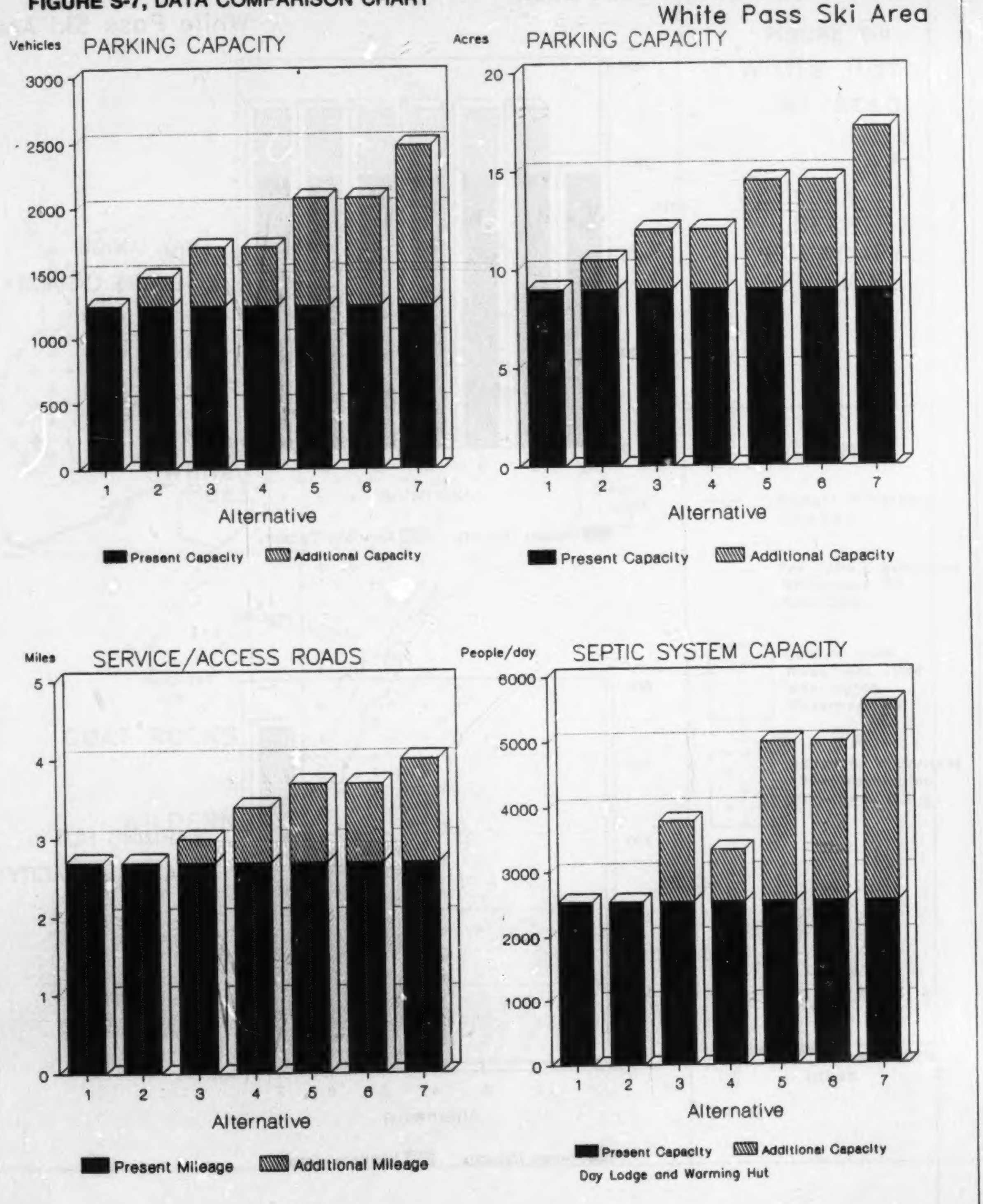


FIGURE S-8, DATA COMPARISON CHART

White Pass Ski Area

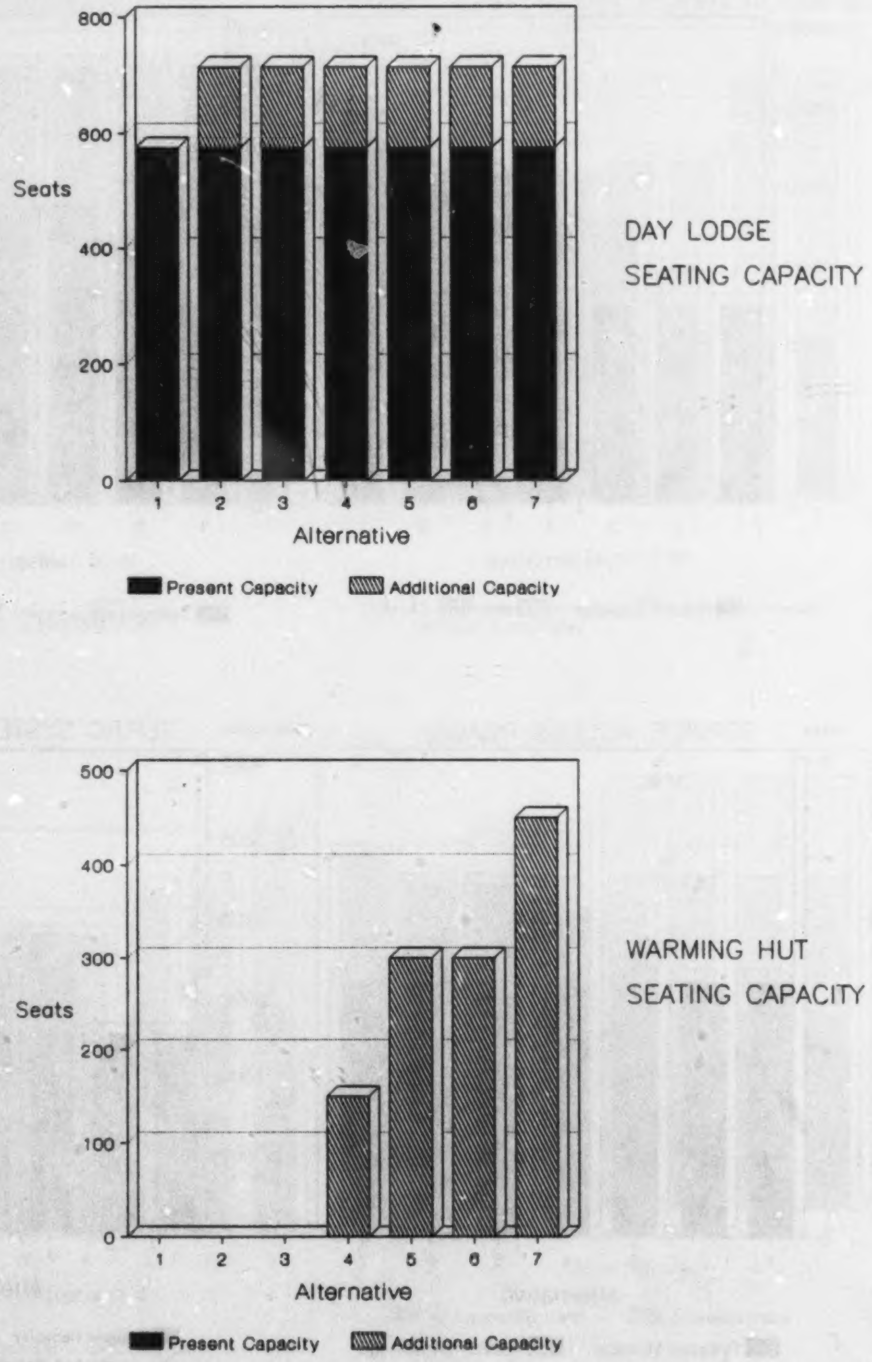
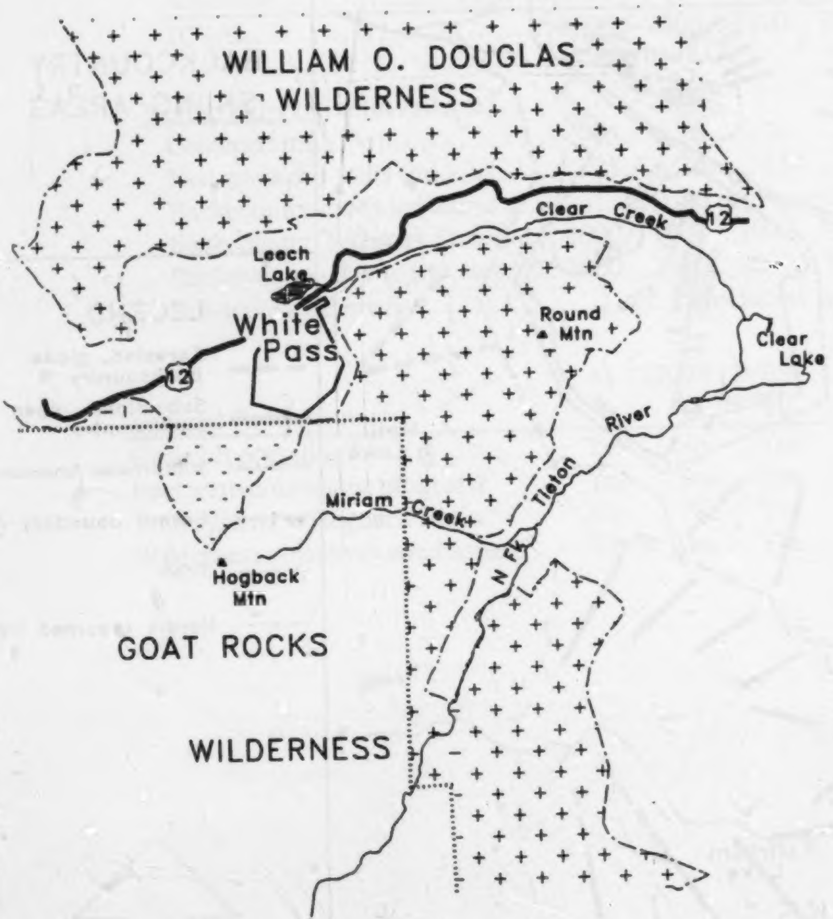


FIGURE S-9
White Pass
Ski Area

1984
WILDERNESS
BOUNDARY
REVISIONS


WILLIAM O. DOUGLAS
WILDERNESS
Clear Creek
12
Leech Lake
White Pass
12
Round Mtn
Clear Lake
River
Tieton
N Fk
Miriam Creek
Hogback Mtn
GOAT ROCKS
WILDERNESS

LEGEND

-·-·- Present Wilderness boundary

········ Pre 1984 Washington Wilderness Bill boundary

▨ Deleted from Wilderness 1984 Washington Wilderness Bill

⊞ Added to Wilderness 1984 Washington Wilderness Bill

north

0 miles 3

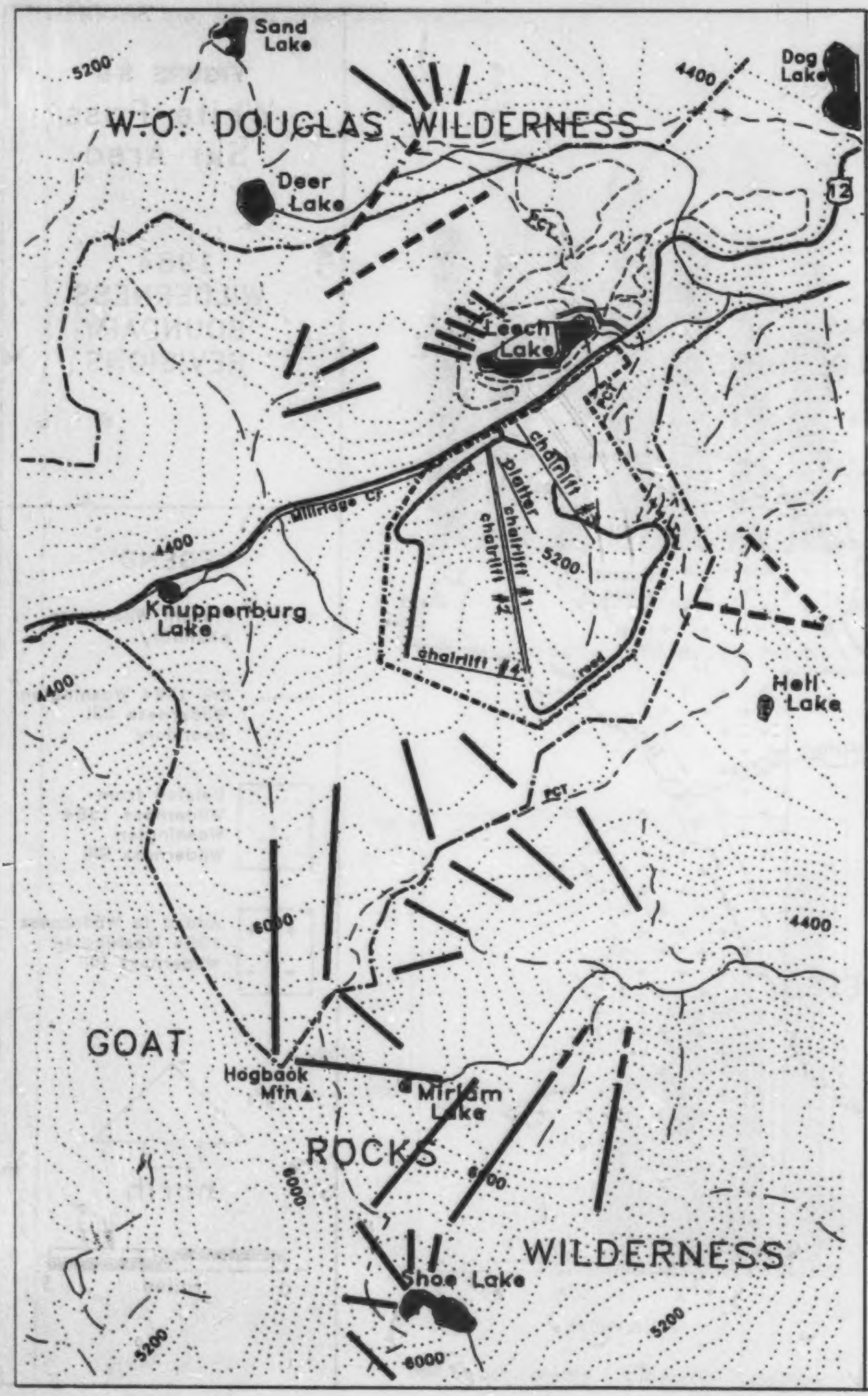

Sand Lake
5200
Dog Lake
4400
W.O. DOUGLAS WILDERNESS
Deer Lake
12
PCT
Leech Lake
PCT
chairlift
platter
road
chairlift #1
chairlift #2
5200
Millridge Cr
4400
Knuppenburg Lake
chairlift #4
road
Hell Lake
4400
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
6000
5200

FIGURE S-10

White Pass Ski Area

BACKCOUNTRY SKIING AREAS

LEGEND

▬ ▬ ▬ Forested, glade backcountry
▬▬▬ Sub-alpine, open backcountry
–·–·– Wilderness boundary
–···– Permit boundary
– – – Trail
------ Nordic groomed trail

north

0 miles 1

160 ft contour interval

1. ADDITIONAL RECREATION OPPORTUNITIES - TABLE S-5

	ALTERNATIVES						
Winter Recreation	1	2	3	4	5	6	7
Alpine Skier (Comfortable Capacities)							
Beginner	750	750	775	1105	1365	1155	1395
Intermediate	1125	1125	1333	1462	1755	1655	1980
Advanced	625	625	992	683	780	1040	1125
TOTAL	2500	2500	3100	3250	3900	3850	4500
Nordic Skier (Acres Available)							
Groomed trails (km.)	15	20	20	25	25	20	25
Non-groomed trails (mi.)	25	25	25	25	25	25	25
Backcountry-extended tourer	[Use is primarily outside study area]						
Backcountry-Telemark (acres)	1000	1000	1000	900	735	900	735
Backcountry- day tourer (acres)	2000	2000	2000	1640	1575	1640	1575
Lift-served Telemark	[Included with Alpine Skiers]						

	ALTERNATIVES		
Summer Recreation	8	9	10
Chair lift operating?	Yes	No	Yes
Interpretive/naturalist program?	Yes	Yes	Yes
Trail system in Hogback Basin?	No	No	Yes
Wilderness objectives emphasized?	Yes	Yes	Yes

2. UNIQUE SETTING OF HOGBACK BASIN - TABLE S-6

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available For:							
Nordic skiers	660	660	660	300	235	300	235
Alpine skiers	0	0	0	360	425	360	425

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Backcountry Nordic Skier:							
Isolation	Retained			Difficult to Achieve			
Independence and self-reliance	No Restrictions on Individual Choices						
Closeness to nature	Retained			Still Possible			
Tranquility	Retained			More Distractions/Encounters			
Semi-primitive setting	Retained			Changed to Roaded-Natural			
Scenic Quality	Retained						
Access	Retained			Too Easy			

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Alpine Skier							
High elevation	Not Available			Available			
Snow conditions	Restricted to Existing Conditions			Upper Elevation Conditions Avail.			
Access to scenic views	Good Views Accessible			Even Better Views Accessible			
Variable terrain	Good Mix		Increased Terrain Made available for:				
(B=begin; I=intermed; A=advanced)	Avail.		A	B/I	B/I	B/I/A	B/I/A
Uncrowded conditions	Crowding Increases		Uncrowded Conditions Retained				

3. PHYSICAL AND BIOLOGICAL EFFECTS - TABLE S-7

	ALTERNATIVES						
	1	2	3	4	5	6	7
Soil Displacement (tons/year)	226.5	226.5	236.2	256.5	275.3	266.2	285.0
Delivered Sediment (tons/year)	11.3	11.3	11.6	12.8	13.8	13.3	14.3
Mass Movement	No areas with Mass Movement Potential will be impacted						
Water Quality	Slight increases possible in sediment as rated above. No other effects on water quality anticipated with planned mitigation.						
Wildlife Habitat	No adverse effect on wildlife habitat.						
Vegetative Clearing							
Heavy Timber	315	323	375	325	325	385	385
Open Stands	0	0	0	75	140	75	140
Visual Quality Areas (acres) Impacted with Retention, VQO and Low VAC. (The most sensitive areas)	315	323	375	325	325	385	385

4. WILDERNESS IMPACTS - TABLE S-8

Alternative	Social/Physical Impacts	Users Solitude	Impacts to Views
1& 8(S)	Use increases at rate comparable to other areas	No change from present	No significant increase
2	Winter increases at rate greater than rec. trends. Could contribute summer uses.	Small change in opportunities for solitude, winter & summer	No change in view
3	Comparable to Alt. 2.	Comparable to Alt. 2.	No impact to Wilderness view
4	Increases in winter ski touring. Summer increases same as Alt.2	Opportunities decreased by adjacent facilities.	Some adjacent views altered.
5	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
6	Slight decrease in impacts from Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
7	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
9(S)	Reduction in summer encounters.	Reduction in summer encounters.	N/A
10(S)	Opportunity to reduce or increase depending on planning.	Opportunities to increase or decrease depending on planning.	N/A

5. DISPLACEMENT OF BACKCOUNTRY SKIERS - TABLE S-9

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available							
in Hogback Basin	660	660	660	300	235	300	235
in Study Area	2500	2500	2500	2140	2075	2140	2075

(Additional backcountry nordic skiing opportunities exist outside the study area, however the White Pass situation is considered unique—see Comparison Criterion #2. See also Fig. S-10.)

For added information for this separate publication of the "Summary" of the DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED EXPANSION OF THE WHITE PASS SKI AREA, the tables and maps, overleaf, are appended,. They are included in the complete DEIS as Tables II-1—II-10 and Figures II-1—II-10. For reference purposes, they retain those designations here.

TABLE II-1, CHARACTERISTICS OF ALTERNATIVE 1

Total Area: ....712 acres
Slope Capacity: .5,125 SAOT

Lift summary:
4 chair lifts
1 platter lift
1 rope tow
Vertical rise upper elevation .....6,000'
- lower elevation .....4,500'
= ....1,500'

Lift Capacity: 3,700 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	750	30
intermediate	185	1125	45
experienced	60	625	25
TOTALS	315	2,500	100

Projected Rec. Use (year 2000)
Alpine................100,000
Nordic
  Groomed trail.....10,000
  Ungroomed.........3,500
  Backcountry........2,000
TOTAL...............115,500

Developed Area (ski runs)
Cleared timber...........315 acres
Open Stands................0
TOTAL......................315 acres

Nordic Skiing
Groomed trails ....9.3 mi. (15 km.)
Non-Groomed trails......25 mi.
Backcountry
  Telemark.............1,000 acres
  Day Tour ....2,000 acres

Base/Support Facilities:
Day Lodge: ....20,000 sq. ft.
................................575 seating
Mid-Mountain Hut:...........None

Parking:
  acreage ....9.0 acres
  vehicle capacity.........1,250

Water System
Base = ...400 gpm spring
...................50,000 gal. tank
Upper = ...None

Waste Water Disposal
Day Lodge = septic tank/drainfield
  2,540 people/day capacity
Condominiums: = septic tank/drainfield
  165 people/day capacity
Upper = None

Service/access roads: 2.7 miles

Construction Elements Scheduling Sequence
Rebuild condominium septic system
Complete revegetation on Lift 4

TOTAL COST $100,000

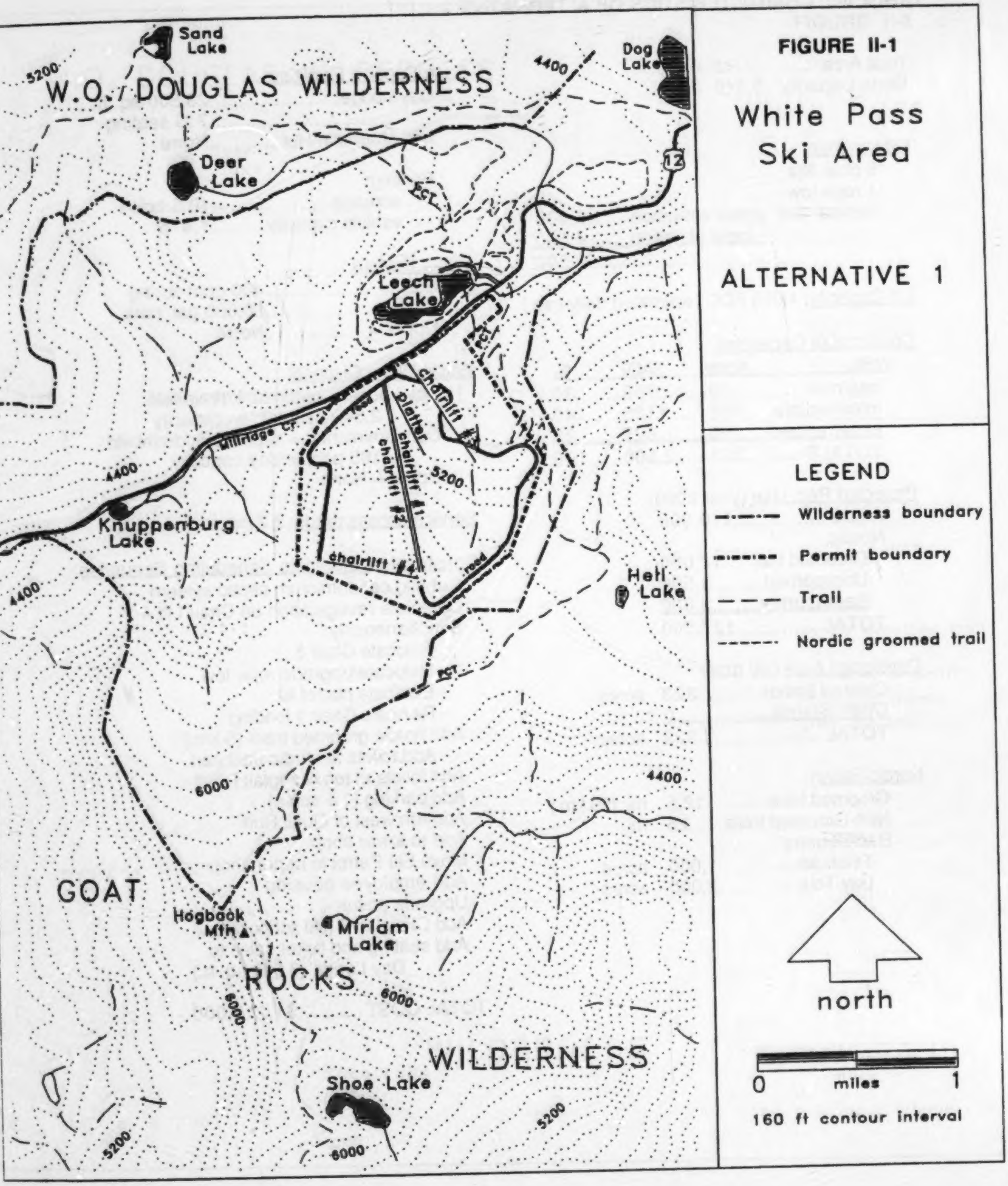


FIGURE II-1

White Pass Ski Area

ALTERNATIVE 1

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
12
Deer Lake
PCT
Leech Lake
PCT
chairlift
platter
chairlift #1
chairlift #2
Millridge Cr.
4400
5200
Knuppenburg Lake
chairlift #4
road
Hell Lake
4400
PCT
6000
4400
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
north
0
miles
1
160 ft contour interval

TABLE II-2, CHARACTERISTICS OF ALTERNATIVE 2

Total Area: ....712 acres
Slope Capacity: .5,245 SAOT

Lift summary:
5 chair lifts
1 rope tow
Vertical rise upper elevation .....6,000'
- lower elevation .....4,500'
= ....1,500'

Lift Capacity: 4,025 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	750	30
intermediate	193	1125	45
experienced	60	625	25
TOTALS	323	2,500	100

Projected Rec. Use (year 2000)
Alpine................110,000
Nordic
Groomed trail.....12,000
Ungroomed.........3,500
Backcountry........2,000
TOTAL...............127,500

Developed Area (ski runs)
Cleared timber...........323 acres
Open Stands...............0
TOTAL......................323 acres

Nordic Skiing
Groomed trails ....12.5 mi. (20 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark.............1,000 acres
Day Tour ....2,000 acres

Base/Support Facilities:
Day Lodge: ....23,500 sq. ft.
................................715 seating
Mid-Mountain Hut:...........None

Parking:
acreage ....10.5 acres
vehicle capacity.........1,475

Water System
Base = ...400 gpm spring
..................50,000 gal. tank
Upper = ...None

Waste Water Disposal
Day Lodge = septic tank/drainfield
2,540 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Upper = None

Service/access roads: 2.7 miles

Construction Elements Scheduling Sequence
Rebuild condominium septic system
Complete revegetation on Chair Lift 4
Simultaneously:
- Relocate Chair 3
- Relocate/upgrade rope tow
- Eliminate platter lift
- Relocate Chair 1 loading
Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead
Add toilets at top of Pigtail Peak
Add parking (1.5 acres)
Add run west of Quail Run
Add to lower shop
Move Ski Patrol to upper shop
Add employee housing
Upgrade power
Add Chair Lift 8 (ski school lift)
Add seating and ticket sales to
Day Lodge (3,500 sq. ft.)

TOTAL COST $1,210,000

FIGURE II-2

White Pass Ski Area

ALTERNATIVE 2

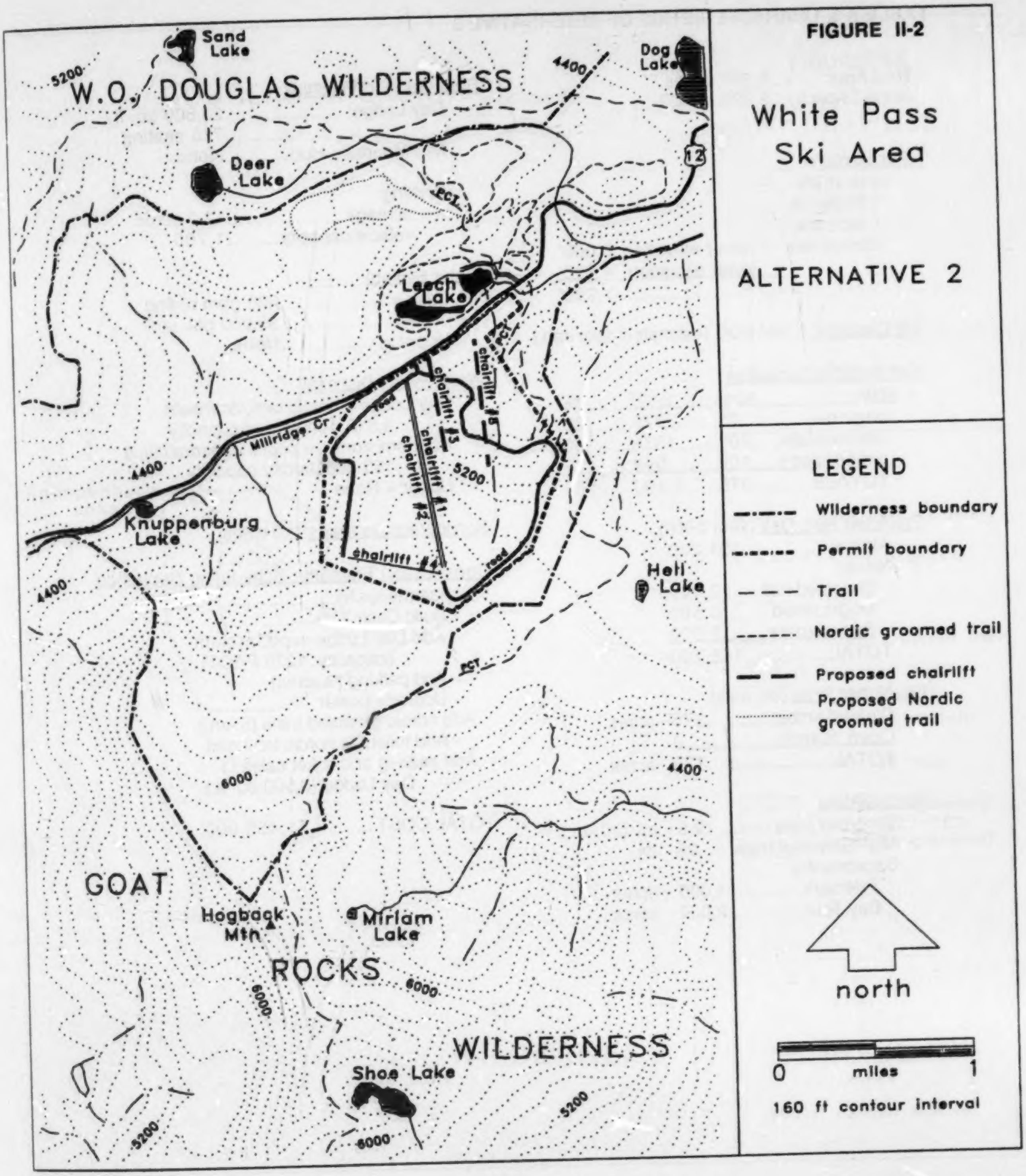

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
12
Deer Lake
PCT
Leech Lake
chairlift #5
chairlift #3
chairlift #1
chairlift #2
chairlift #4
road
5200
Millridge Cr
4400
Knuppenburg Lake
4400
Hell Lake
PCT
4400
6000
GOAT ROCKS WILDERNESS
Hogback Mtn
Miriam Lake
6000
6000
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed chairlift
Proposed Nordic groomed trail
north
0 miles 1
160 ft contour interval

TABLE II-3, CHARACTERISTICS OF ALTERNATIVE 3

Total Area: ....1,380 acres
Slope Capacity: .5,825 SAOT

Lift summary:
5 chair lifts
1 Platter lift
1 rope tow
Vertical rise upper elevation. 6,000'
- lower elevation.. 4,100'
= ....1,900'

Lift Capacity: 5,184 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	775	25
intermediate	205	1333	43
experienced	100	992	32
TOTALS	375	3,100	100

Projected Rec. Use (year 2000)
Alpine................131,200
Nordic
Groomed trail.....12,000
Ungroomed.........3,500
Backcountry........2,000
TOTAL...............148,700

Developed Area (ski runs)
Cleared timber...........375 acres
Open Stands.................0
TOTAL.......................375 acres

Nordic Skiing
Groomed trails ....12.5 mi. (20 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark.............1,000 acres
Day Tour ....2,000 acres

Base/Support Facilities:
Day Lodge: ....23,500 sq. ft.
...............................715 seating
Mid-Mountain Hut:...........None

Parking:
acreage ....12.0 acres
vehicle capacity.........1,700

Water System
Base = ...400 gpm spring
...................50,000 gal. tank
Upper = ...None

Waste Water Disposal
Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Upper = None

Service/access roads: 3.0 miles

Construction Elements Scheduling Sequence
Simultaneously:
- Build Chair 7
- Add Day Lodge septic system (capacity: 1270 PAOT)
- Add parking (3 acres)
- Upgrade power

Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead

Add seating and ticket sales to Day Lodge (3,500 sq. ft.)

TOTAL COST $1,455,000

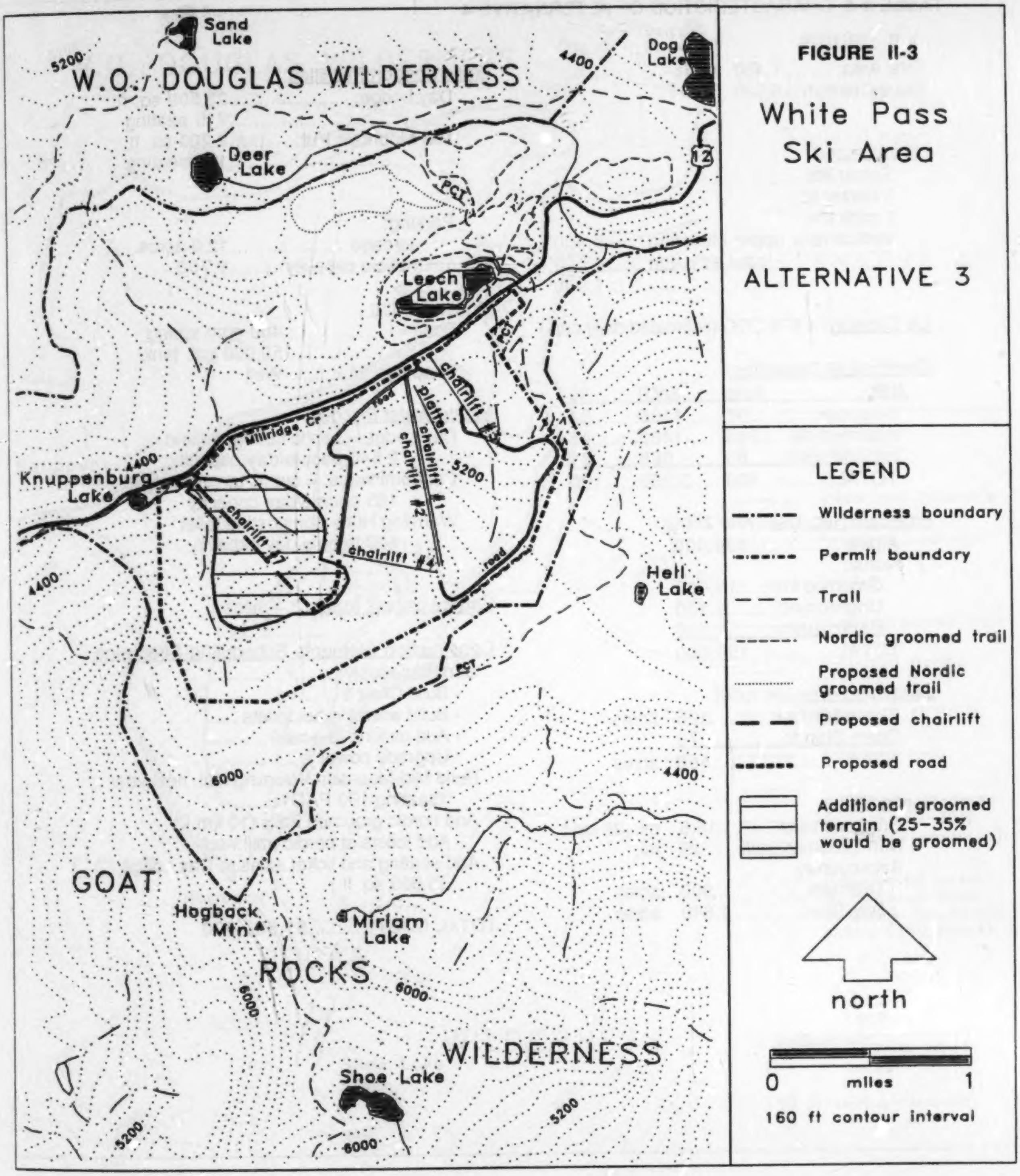


FIGURE II-3

White Pass Ski Area

ALTERNATIVE 3

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift
platter
Millridge Cr
road
chairlift #1
chairlift #2
5200
4400
Knuppenburg Lake
chairlift #7
chairlift #4
road
4400
Hell Lake
PCT
6000
4400
GOAT ROCKS WILDERNESS
Hogback Mtn
Miriam Lake
6000
6000
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trail
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
north
0 miles 1
160 ft contour interval

TABLE II-4, CHARACTERISTICS OF ALTERNATIVE 4

Total Area: ....1,460 acres
Slope Capacity: .6,500 SAOT

Lift summary:

5 chair lifts
1 Platter lift
1 rope tow
Vertical rise upper elevation .....6,400'
- lower elevation .....4,500'
= ....1,900'

Lift Capacity: 4,675 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	95	1105	34
intermediate	245	1462	45
experienced	60	683	21
TOTALS	400	3,250	100

Projected Rec. Use (year 2000)

Alpine 136,000
Nordic
Groomed trail.....15,000
Ungroomed.........3,500
Backcountry.......1,000
TOTAL...............155,000

Developed Area (ski runs)

Cleared timber...........325 acres
Open Stands..............75
TOTAL.....................400 acres

Nordic Skiing

Groomed trails ....15.6 mi. (25 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark................900 acres
Day Tour ....1,640 acres

Base/Support Facilities:

Day Lodge: ....23,500 sq. ft.
...............................715 seating
Mid-Mountain Hut:...........2,700 sq. ft.
...............................150 seating

Parking:
acreage ....12.0 acres
vehicle capacity.........1,700

Water System

Base = ...400 gpm spring
...................50,000 gal. tank
Warming Hut = ...Well

Waste Water Disposal

Day Lodge = septic tank/drainfield
2,540 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Warming Hut = composting toilet
800 people/day capacity

Service/access roads: 3.4 miles

Construction Elements Scheduling Sequence

Simultaneously:
- Build Chair 5
- Build warming hut toilets
- Add parking (3 acres)
- Upgrade power

Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)
Add nordic groomed trails (10 km.)
- Add toilets at nordic trailhead

Add seating and ticket sales to Day Lodge (3,500 sq. ft.)

TOTAL COST $1,585,000

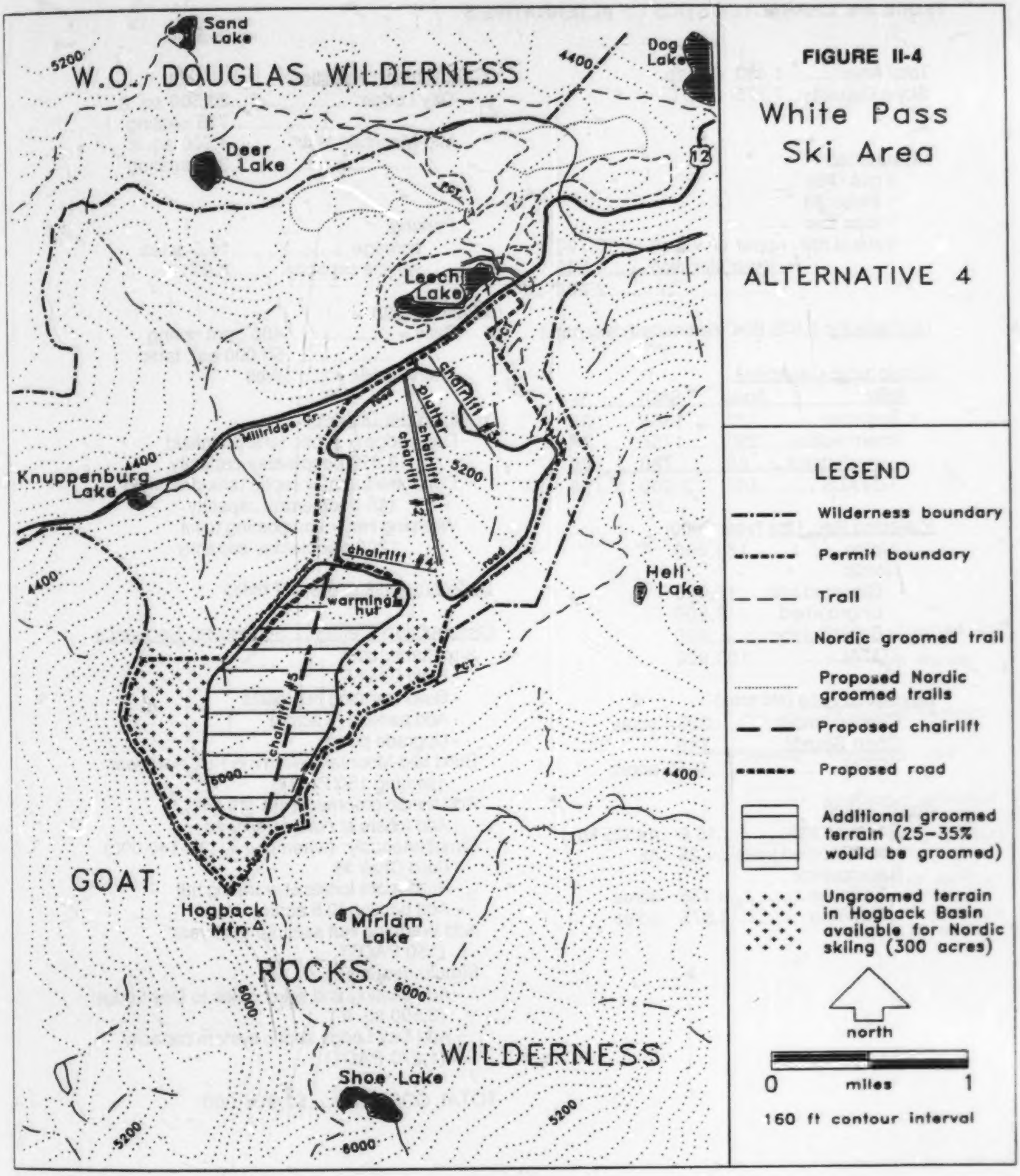


FIGURE II-4

White Pass Ski Area

ALTERNATIVE 4

W.O. DOUGLAS WILDERNESS
GOAT ROCKS WILDERNESS
Sand Lake
Dog Lake
Deer Lake
Leech Lake
Knuppenburg Lake
Hell Lake
Miriam Lake
Shoe Lake
Hogback Mtn
Millridge Cr.
PCT
12
road
platter
chairlift #1
chairlift #2
chairlift #3
chairlift #4
chairlift #5
warming hut
4400
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (300 acres)
north
0 miles 1
160 ft contour interval

TABLE II-5, CHARACTERISTICS OF ALTERNATIVE 5

Total Area: ....1,460 acres
Slope Capacity: .7,775 SAOT

Lift summary:
- 6 chair lifts
- 1 Platter lift
- 1 rope tow
- Vertical rise upper elevation .....6,700'
  - lower elevation .....4,500'
  = ...2,200'

Lift Capacity: 5,875 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	125	1365	35
intermediate	280	1755	45
experienced	60	780	20
TOTALS	465	3,900	100

Projected Rec. Use (year 2000)
- Alpine................169,600
- Nordic
  - Groomed trail.....15,000
  - Ungroomed.........3,500
  - Backcountry..........800
- TOTAL...............188,900

Developed Area (ski runs)
- Cleared timber...........325 acres
- Open Stands............140
- TOTAL......................465 acres

Nordic Skiing
- Groomed trails ....15.6 mi. (25 km.)
- Non-Groomed trails......25 mi.
- Backcountry
  - Telemark................735 acres
  - Day Tour.............1,575 acres

Base/Support Facilities:
- Day Lodge: ....23,500 sq. ft.
  ....715 seating
- Mid-Mountain Hut:...........4,500 sq. ft.
  ....300 seating

Parking:
- acreage ....14.5 acres
- vehicle capacity.........2,075

Water System
- Base = ...400 gpm spring
  ....50,000 gal. tank
- Warming Hut = ...Well

Waste Water Disposal
- Day Lodge = septic tank/drainfield
  3,810 people/day capacity
- Condominiums: = septic tank/drainfield
  165 people/day capacity
- Warming Hut = composting toilet
  1200 people/day capacity

Service/access roads: 3.7 miles

Construction Elements Scheduling Sequence
- Simultaneously:
  - Build Chair 5
  - Build warming hut toilets
  - Add parking (3 acres)
  - Upgrade power
- Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)
- Add nordic groomed trails (10 km.)
  - Add toilets at nordic trailhead
- Simultaneously: (when use = 135-140,000)
  - Build Chair #6
  - Build more toilets at warming hut
  - Add parking (2.5 acres)
- Add Warming Hut seating, next year (150 PAOT)
- Simultaneously:
  - Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
  - Add Day Lodge septic system capacity (1,270 PAOT)

TOTAL COST $2,905,000

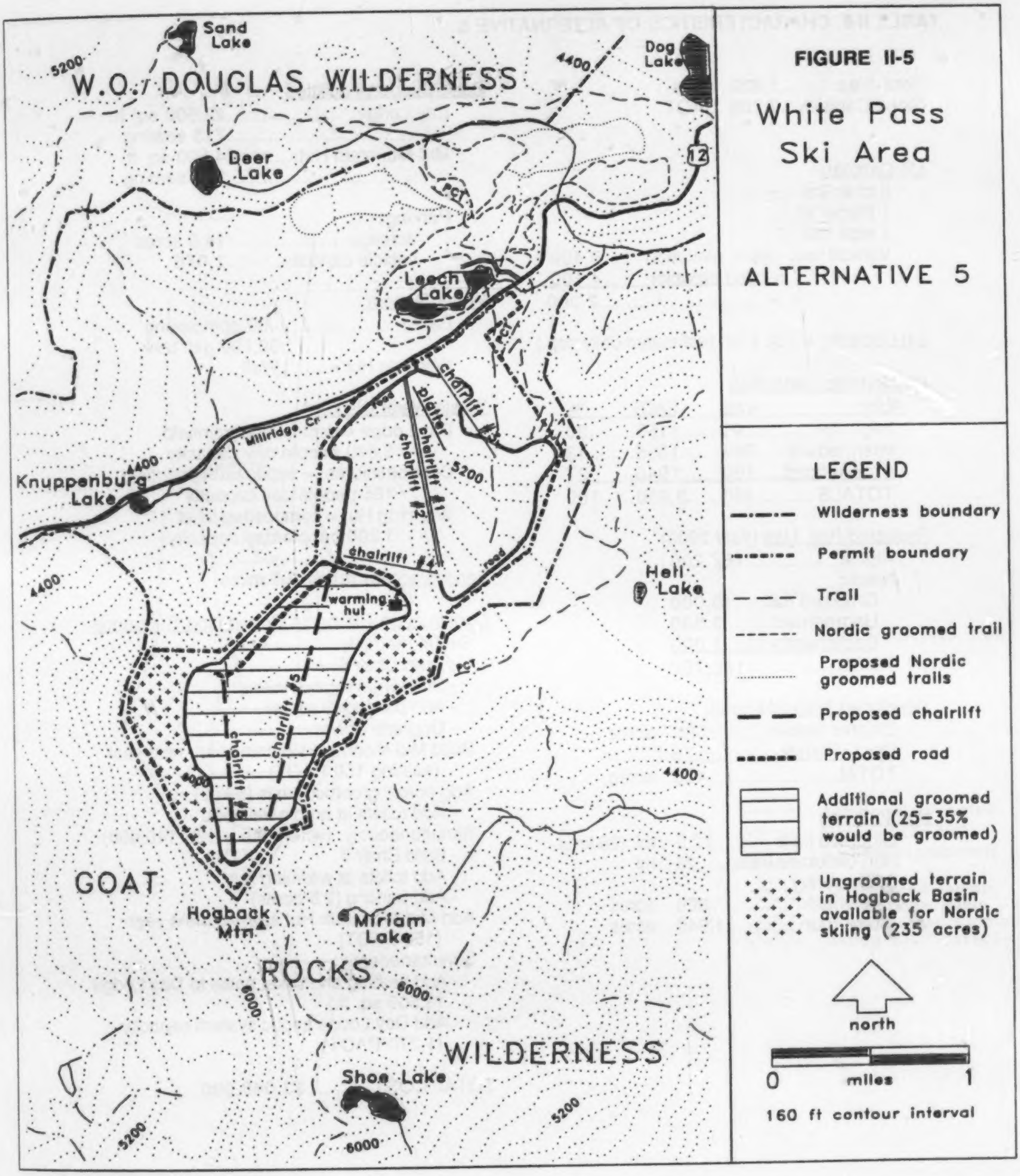


FIGURE II-5

White Pass Ski Area

ALTERNATIVE 5

Sand Lake
W.O. DOUGLAS WILDERNESS
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift #3
platter
chairlift #1
chairlift #2
road
Millridge Cr.
Knuppenburg Lake
chairlift #4
warming hut
Hell Lake
chairlift #5
chairlift #8
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
WILDERNESS
Shoe Lake
5200
4400
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25–35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (235 acres)
north
0 miles 1
160 ft contour interval

TABLE II-6, CHARACTERISTICS OF ALTERNATIVE 6

Total Area: ....1,820 acres
Slope Capacity: .7,200 SAOT

Lift summary:

6 chair lifts
1 Platter lift
1 rope tow
Vertical rise upper elevation .....6,400'
- lower elevation .....4,100'
= 2,300

Lift Capacity: 6,160 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	95	1155	30
intermediate	265	1655	43
experienced	100	1040	27
TOTALS	460	3,850	100

Projected Rec. Use (year 2000)

Alpine................167,200
Nordic
Groomed trail.....15,000
Ungroomed.........3,500
Backcountry........1,000
TOTAL..............186,700

Developed Area (ski runs)

Cleared timber...........385 acres
Open Stands..............75
TOTAL......................460 acres

Nordic Skiing

Groomed trails ....12.5 mi. (20 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark................900 acres
Day Tour ....1,640 acres

Base/Support Facilities:

Day Lodge: ....23,500 sq. ft.
..............................715 seating
Mid-Mountain Hut:...........4,500 sq. ft.
..............................300 seating

Parking:
acreage ....14.5 acres
vehicle capacity.........2,075

Water System

Base = ...400 gpm spring
..................50,000 gal. tank
Warming Hut = ...Well

Waste Water Disposal

Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Warming Hut = composting toilet
1,200 people/day capacity

Service/access roads: 3.7 miles

Construction Elements Scheduling Sequence

Simultaneously:
- Build Chair 5
- Build warming hut toilets
- Add parking (3 acres)
- Upgrade power

Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)

Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead

Simultaneously: (when use = 135-140,000)
- Build Chair 7
- Add toilets at warming hut
- Add parking (2.5 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)

Simultaneously:
- Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
- Add Day Lodge septic system capacity (1,270 PAOT)

TOTAL COST $3,040,000

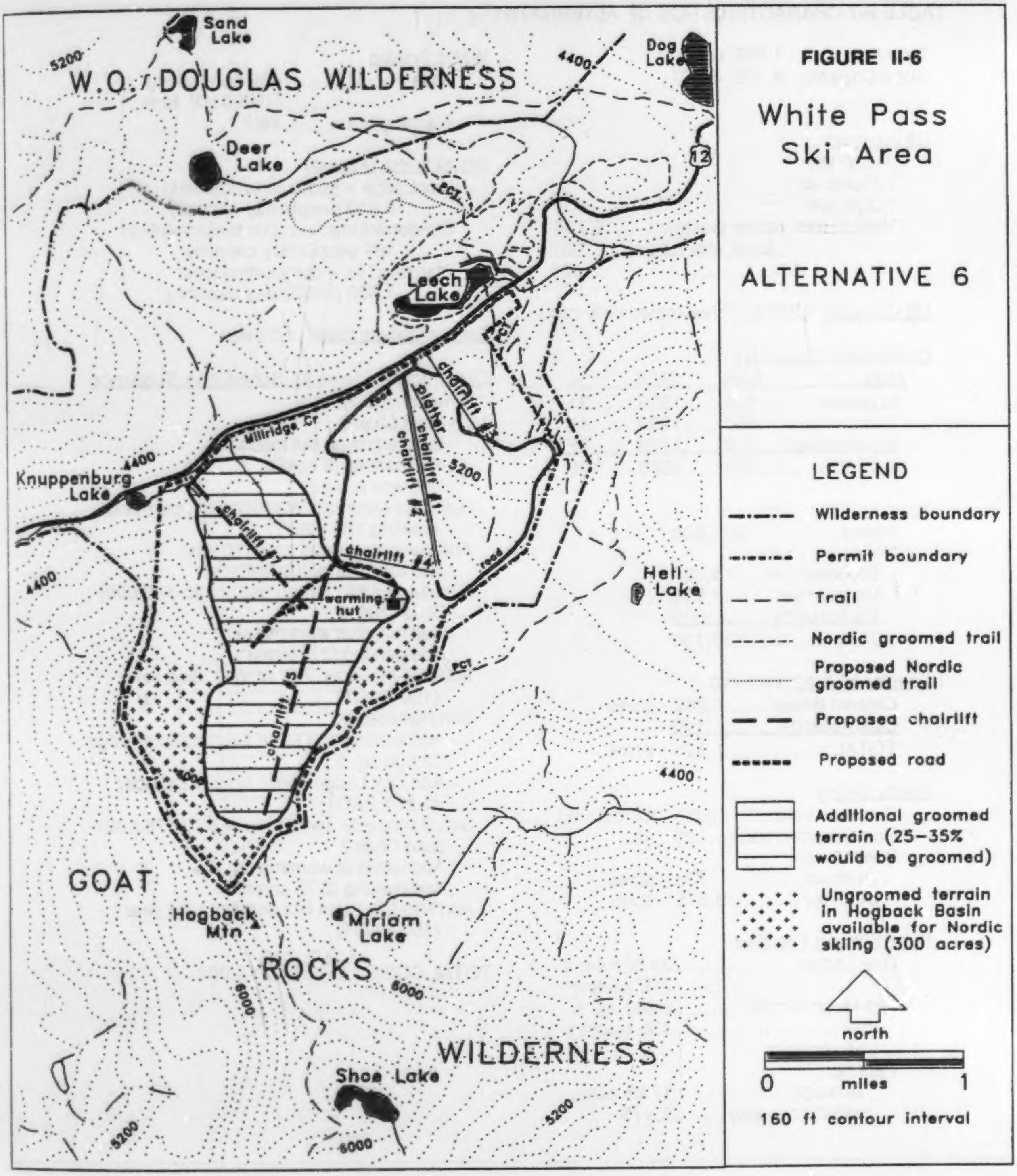


FIGURE II-6

White Pass Ski Area

ALTERNATIVE 6

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift #3
platter
chairlift #1
chairlift #2
5200
Millridge Cr
4400
Knuppenburg Lake
chairlift #7
chairlift #4
road
Hell Lake
4400
warming hut
chairlift #5
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trail
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (300 acres)
north
0
miles
1
160 ft contour interval

TABLE II-7 CHARACTERISTICS OF ALTERNATIVE 7

Total Area: ....1,820 acres
Slope Capacity: .8,475 SAOT

Lift summary:
7 chair lifts
1 Platter lift
1 rope tow
Vertical rise upper elevation .....6,700'
- lower elevation .....4,100'
= 2,600

Lift Capacity: 7,360 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	125	1395	31
intermediate	300	1980	44
experienced	100	1125	25
TOTALS	525	4500	100

Projected Rec. Use (year 2000)
Alpine................200,800
Nordic
Groomed trail.....15,000
Ungroomed.........3,500
Backcountry..........800
TOTAL..............220,100

Developed Area (ski runs)
Cleared timber...........385 acres
Open Stands............140
TOTAL......................525 acres

Nordic Skiing
Groomed trails ....15.6 mi. (25 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark................735 acres
Day Tour ....1,575 acres

Base/Support Facilities:
Day Lodge: ....23,500 sq. ft.
................................715 seating
Mid-Mountain Hut: ....6,300 sq. ft.
................................450 seating

Parking:
acreage.....................17.25 acres
vehicle capacity 2,475

Water System
Base = ...400 gpm spring
..................50,000 gal. tank
Warming Hut = ...Well

Waste Water Disposal
Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Warming Hut = composting toilet
1,600 people/day capacity

Service/access roads: 4.0 miles

Construction Elements Scheduling Sequence

Simultaneously:
- Build Chair 5
- Build warming hut toilets
- Add parking (3 acres)
- Upgrade power

Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)

Add nordic groomed trails (10 km.)
- Add toilets at nordic trailhead

Simultaneously: (when use = 135-140,000)
- Build Chair 6
- Add toilets at warming hut
- Add parking (2.5 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)

Simultaneously:
- Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
- Add Day Lodge septic system capacity (1,270 PAOT)

Simultaneously: (when use = 170-175,000)
- Build Chair 7
- Add toilets at warming hut
- Add parking (2.75 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)

TOTAL COST $4,255,000

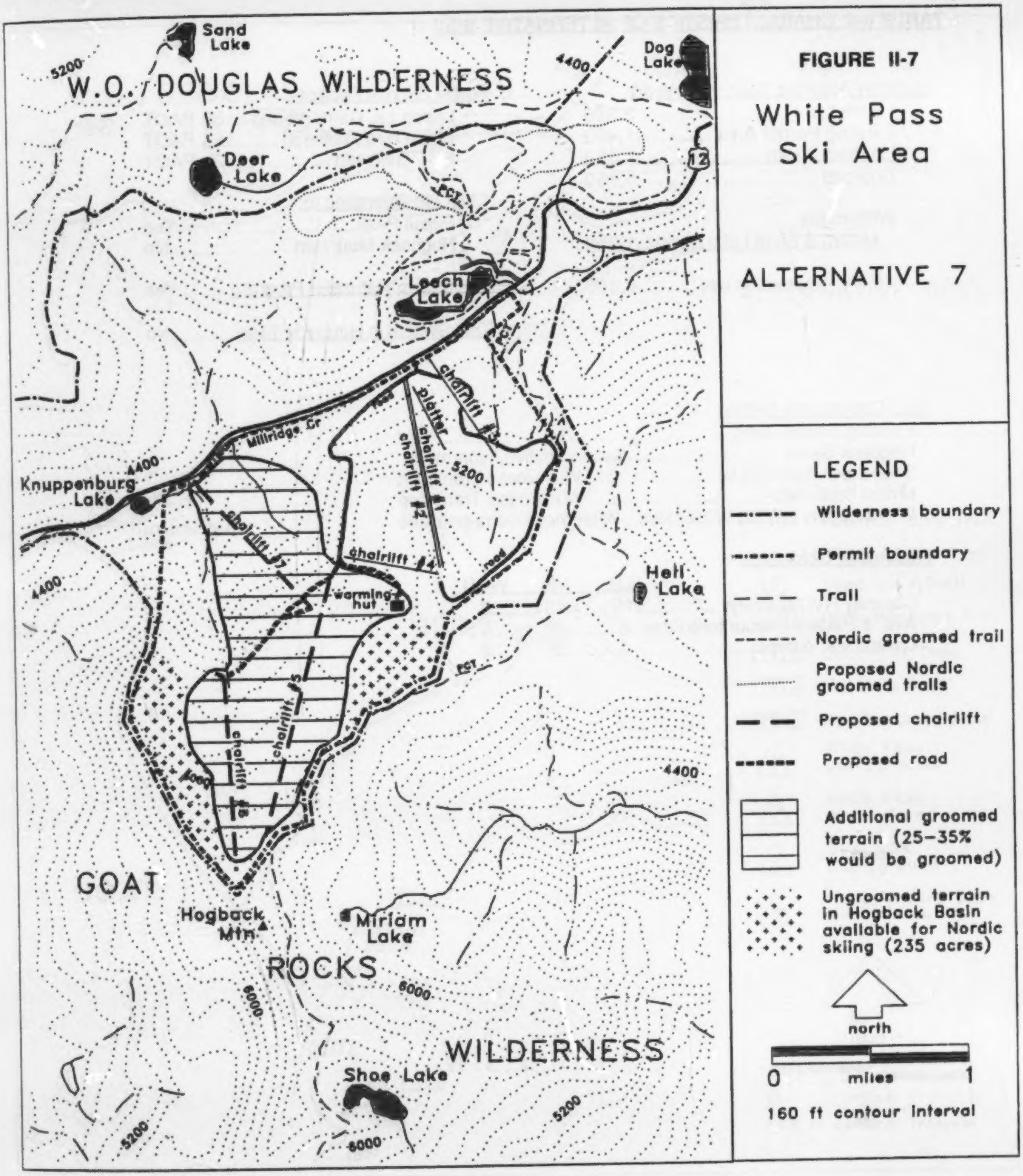


FIGURE II-7

White Pass Ski Area

ALTERNATIVE 7

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
12
Deer Lake
PCT
Leech Lake
chairlift #3
platter
chairlift #1
chairlift #2
5200
Millridge Cr
road
Knuppenburg Lake
4400
chairlift #7
chairlift #4
road
Hell Lake
warming hut
PCT
chairlift #5
chairlift #6
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (235 acres)
north
0
miles
1
160 ft contour interval

TABLE II-8. CHARACTERISTICS OF ALTERNATIVE 8(S)

Summer Activities (Rec. visits/year)

Leech Lake	3,300
Existing Permit Area	1,400
Hogback Basin	350
Subtotal	5,050
Wilderness	
Miriam & Shoe Lake Basins	1,250
TOTAL Recreation use	6,300

Forest Service Facilities

Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:

Pigtail Peak	Yes
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	No

Rec. Opportunity Setting

Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives

	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

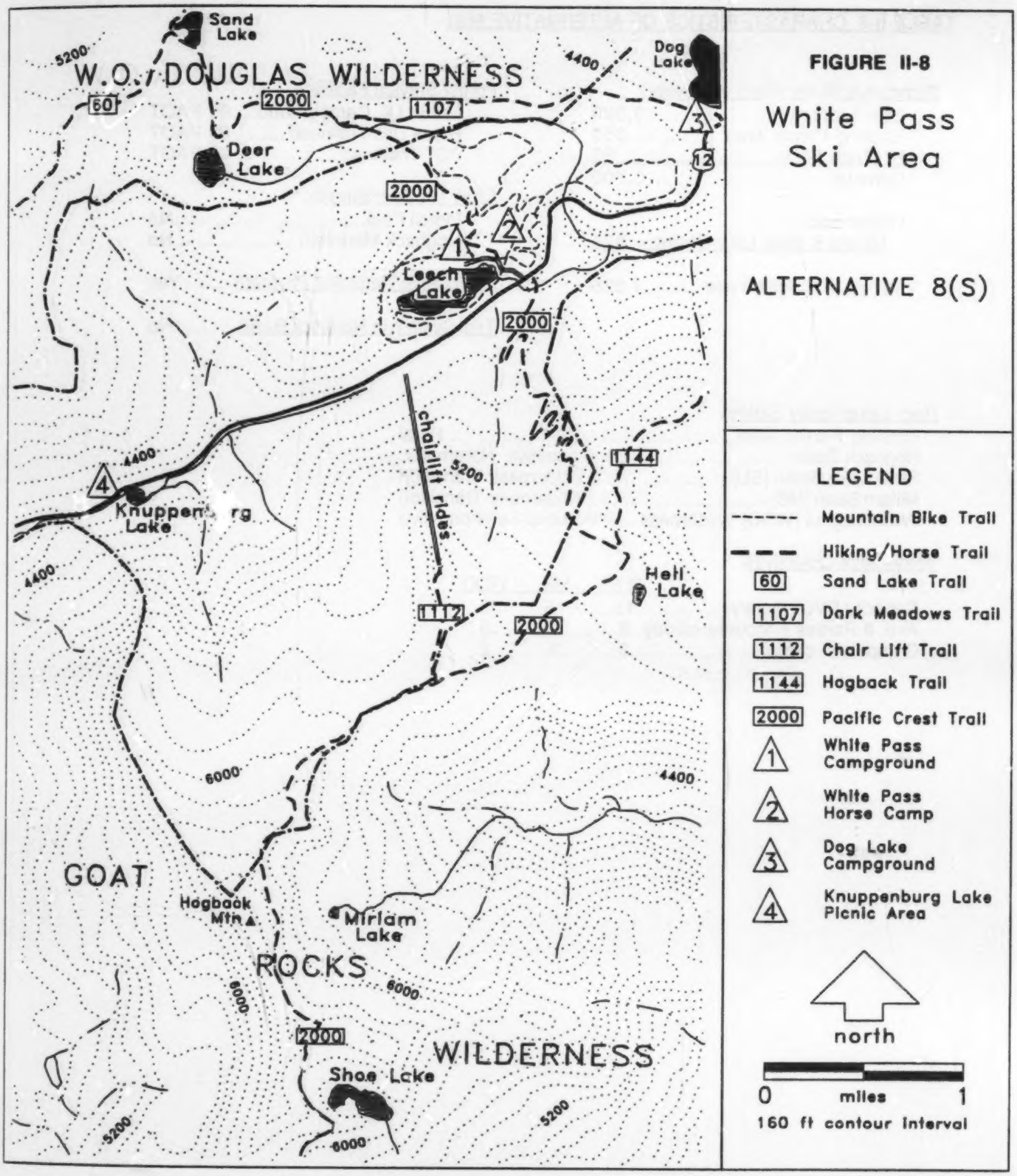


FIGURE II-8

White Pass Ski Area

ALTERNATIVE 8(S)

Sand Lake
W.O. DOUGLAS WILDERNESS
60
2000
1107
Dog Lake
3
12
Deer Lake
2000
1
2
Leech Lake
2000
chairlift rides
5200
4400
4
Knuppenburg Lake
1144
Hell Lake
1112
2000
6000
4400
GOAT
ROCKS
WILDERNESS
Hogback Mtn
Miriam Lake
6000
2000
Shoe Lake
5200
6000
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval

TABLE II-9. CHARACTERISTICS OF ALTERNATIVE 9(S)

Summer Activities (Rec. visits/year)	
Leech Lake	3,300
Existing Permit Area	350
Hogback Basin	50
Subtotal	3,700
Wilderness Miriam & Shoe Lake Basins	625
TOTAL Recreation use	4,325

Forest Service Facilities	
Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:	
Pigtail Peak	No
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	No

Rec. Opportunity Setting	
Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

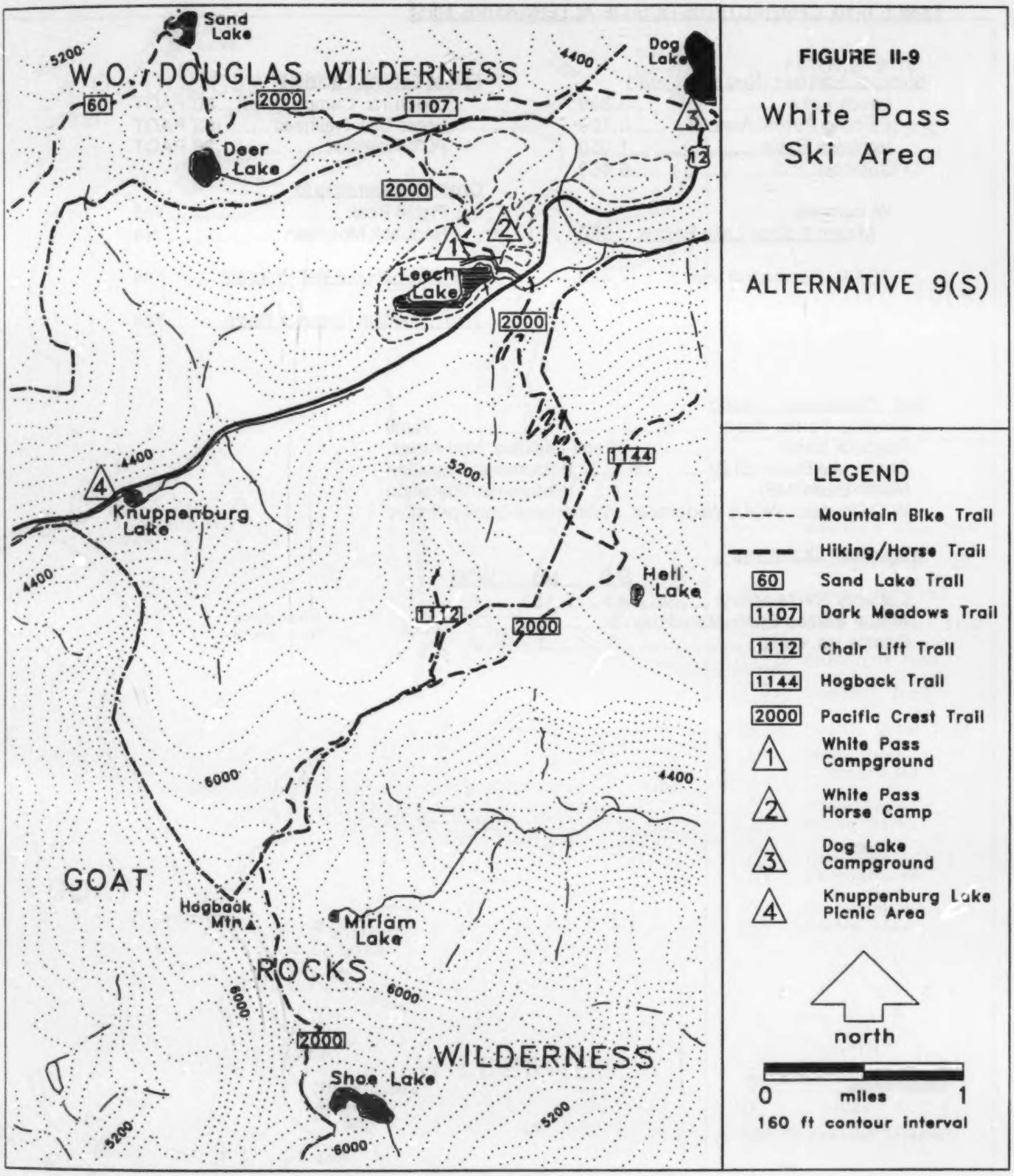


FIGURE II-9

White Pass Ski Area

ALTERNATIVE 9(S)

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
60
2000
1107
Dog Lake
4400
3
12
Deer Lake
2000
2
1
Leech Lake
2000
1144
5200
4400
4
Knuppenburg Lake
4400
Hell Lake
1112
2000
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
2000
WILDERNESS
Shoe Lake
5200
6000
5200
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval

TABLE II-10. CHARACTERISTICS OF ALTERNATIVE 10(S)

Summer Activities (Rec. visits/year)

Leech Lake	3,300
Existing Permit Area	2,100
Hogback Basin	1,050
Subtotal	6,450
Wilderness Miriam & Shoe Lake Basins	950
TOTAL Recreation use	7,400

Forest Service Facilities

Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:

Pigtail Peak	Yes
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	Yes

Rec. Opportunity Setting

Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness-Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives

	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

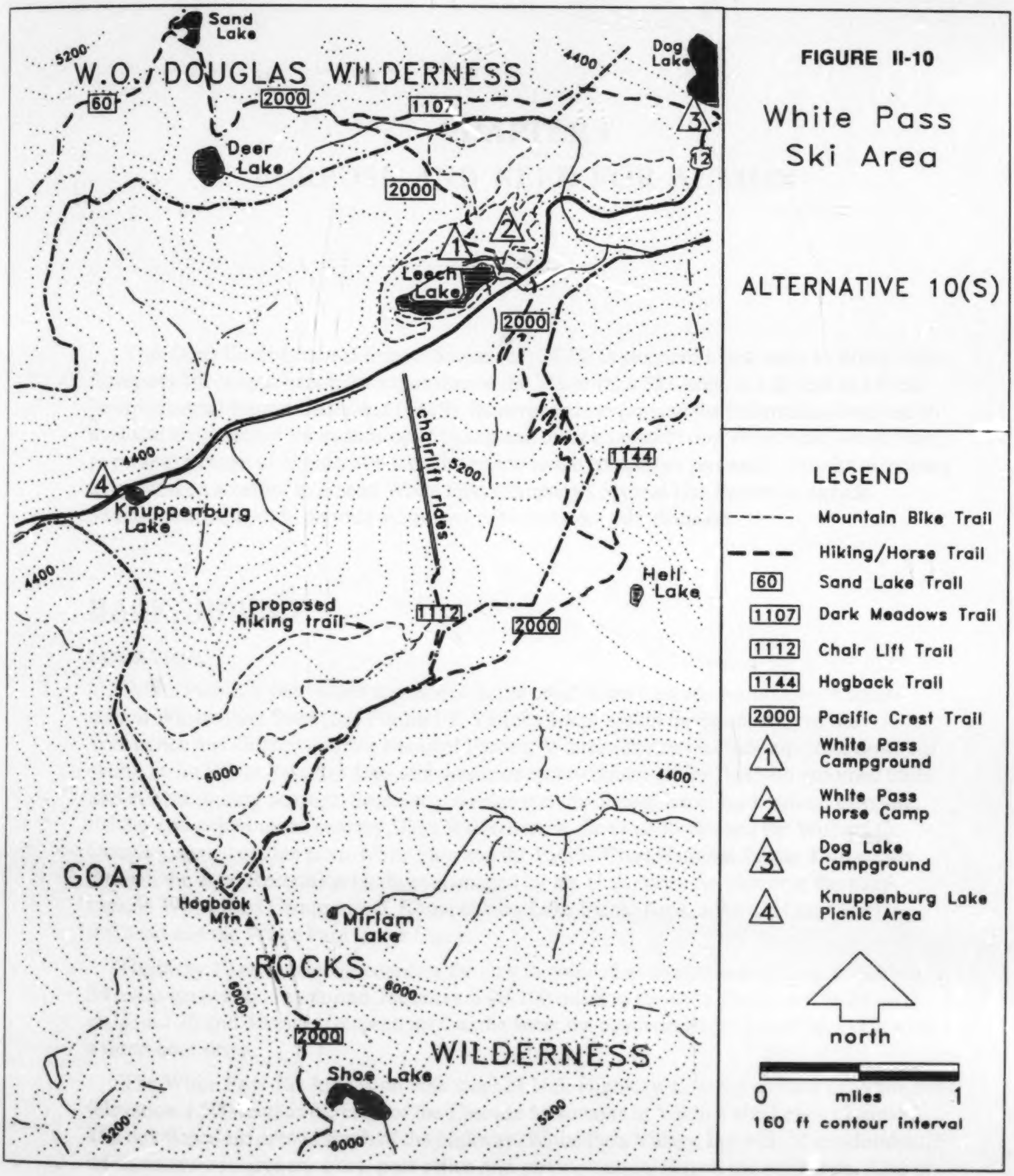


FIGURE II-10
White Pass Ski Area
ALTERNATIVE 10(S)
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval
Sand Lake
W.O. DOUGLAS WILDERNESS
Dog Lake
Deer Lake
Leech Lake
Knuppenburg Lake
chairlift rides
proposed hiking trail
Hell Lake
GOAT ROCKS WILDERNESS
Hogback Mtn
Miriam Lake
Shoe Lake
60
2000
1107
1112
1144
12
5200
4400
6000

CHAPTER I
PURPOSE AND NEED FOR ACTION

This Draft Environmental Impact Statement (DEIS) is prepared in response to White Pass Company Inc.'s application for expansion of the White Pass Ski Area. It will lead to a Final Environmental Impact Statement (FEIS). Its purpose is to provide the information required to evaluate the potential for expansion of skiing and other recreation opportunities at White Pass; to present a range of alternatives from no action to the company's proposal; to assist in making a decision on whether to amend White Pass Company's Special Use Permit to include additional area; and, to provide a framework to carry out this decision.

BACKGROUND

LOCATION

White Pass is a year-round sports area at the crest of the Cascade Mountains in south-central Washington State [See Figure I-1, Vicinity Map] within the boundaries of the Wenatchee and Gifford Pinchot National Forests. Winter activities include alpine or downhill skiing at the White Pass Ski Area and nordic or cross-country skiing, both on groomed trails and in backcountry settings. Summer activities include hiking, horse-back riding, camping, fishing and enjoying the scenery. Two Wildernesses, the Goat Rocks and the William O. Douglas, are accessible from White Pass and the Pacific Crest National Scenic Trail passes through the area. Recreation facilities managed by the U.S. Forest Service near the pass include White Pass Campground, Knuppenburg Lake Picnic Area, a Pacific Crest Trail trailhead and the White Pass Horse Camp.

Highway 12 conveniently connects the area to population centers east and west. Yakima is 54 miles eastward; Seattle and Tacoma are 90-100 miles to the west. Packwood and Randle are about 20 and 35 miles, respectively, to the west; the southern Puget Sound region is within a three-hour drive.

The White Pass Ski Area is on both sides of U.S. Highway 12 at the summit of White Pass (elevation 4,500 feet) at the crest of the Cascade Mountains in Yakima and Lewis Counties. The developed ski area is south of the highway. White Pass Village Inn with 55 condominium units, restaurant, grocery store, post office and service station, lies on the north side. Also on the north side is a loop system of groomed nordic ski trails. White Pass Company, Inc.

operates these facilities under a Special Use Permit administered by the Wenatchee National Forest. [See Figure I-2, Special Use Permit Area.]

The proposed expansion area lies to the south and west of the developed alpine ski area. It is an unmodified natural alpine area presently used by hikers and backpackers in the summer and by nordic skiers, snowshoers, winter campers and, occasionally, alpine skiers in the winter. The Pacific Crest Trail is on the southeastern edge of the expansion area.

White Pass primarily serves local family groups and day skiers. About 1/3 of the day skiers come from east of the Cascades and 2/3 from west of the mountains, mainly from the southern Puget Sound area.

DEVELOPMENT HISTORY

Development of the White Pass area for winter sports was first discussed in the Snoqualmie National Forest Report, "Recreation Plan, Randle-Yakima Highway Unit, Tieton-Clear Lake Section," in 1948. The highway was completed in 1950 and in 1953 the White Pass Winter Sports Area was under development by the Yakima Valley Ski Club. White Pass Company began operation in 1955. Initial facilities involved rope tows, a platter lift, and a day lodge. Chair Lift 1 to the top of Pigtail Peak, elevation 6,000 feet, was added in 1956. Successful summer operations started in 1957. Since then White Pass Company has mainly concentrated on slope grooming and improved base facilities to enhance user satisfaction. Few new facilities have been built. Chair lift 2 was added parallel to the first chair lift in 1958, Chair Lift 3 added in the lower base area in 1964, and Chair Lift 4 built in 1984. The day lodge burned in November, 1959 and had to be rebuilt. It was expanded and remodeled in 1988 and extensive work has been done on the sewer system. [See Figure I-3, Base Area Facilities]

Interest in cross-country skiing at White Pass began in the late 1970's. This use has continued to the present time. In 1984, 15 kilometers of groomed trails were developed on the north side of Highway 12, and are operated by White Pass Company. Backcountry nordic skiing is becoming increasingly popular in Hogback Basin and the other basins to the south. Chair Lifts 1 and 2 have made access to these areas easier for the skiers.

PLANNING FOR EXPANSION

The White Pass Company began planning for expansion in 1961 and in 1966 made a request to expand into Hogback Basin. A major planning effort was initiated in 1978, with the Master Plan being completed in May,1979.

In the Pacific Northwest Region the Forest Service does not approve Master Plans. The Forest Service approves the Site Development Plan that follows the Master Plan. The Forest Service agreed in part to the White Pass Master Plan, conceptually, but areas within existing Wilderness were not agreed to because of the 1964 Wilderness Act, which precludes development.

FIGURE I-1, WHITE PASS VICINITY

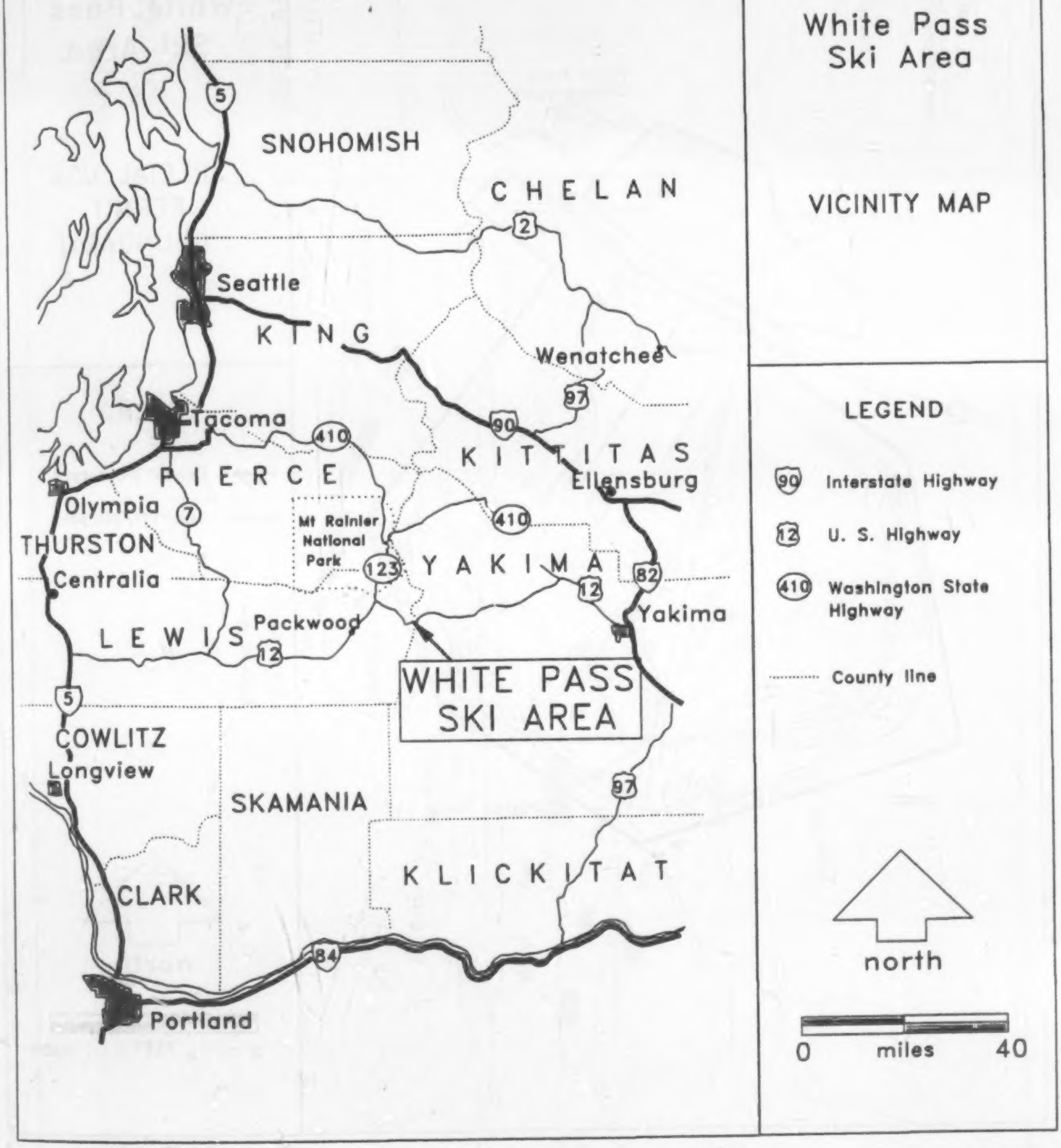

White Pass
Ski Area
VICINITY MAP
LEGEND
90 Interstate Highway
12 U. S. Highway
410 Washington State Highway
County line
north
0 miles 40
SNOHOMISH
CHELAN
2
5
Seattle
KING
Wenatchee
97
Tacoma
410
90
KITTITAS
Ellensburg
PIERCE
Olympia
7
THURSTON
Mt Rainier National Park
410
Centralia
123
YAKIMA
82
12
Yakima
LEWIS
Packwood
12
WHITE PASS SKI AREA
5
COWLITZ
Longview
SKAMANIA
97
KLICKITAT
CLARK
84
Portland

FIGURE I-2, WHITE PASS SPECIAL USE PERMIT AREA

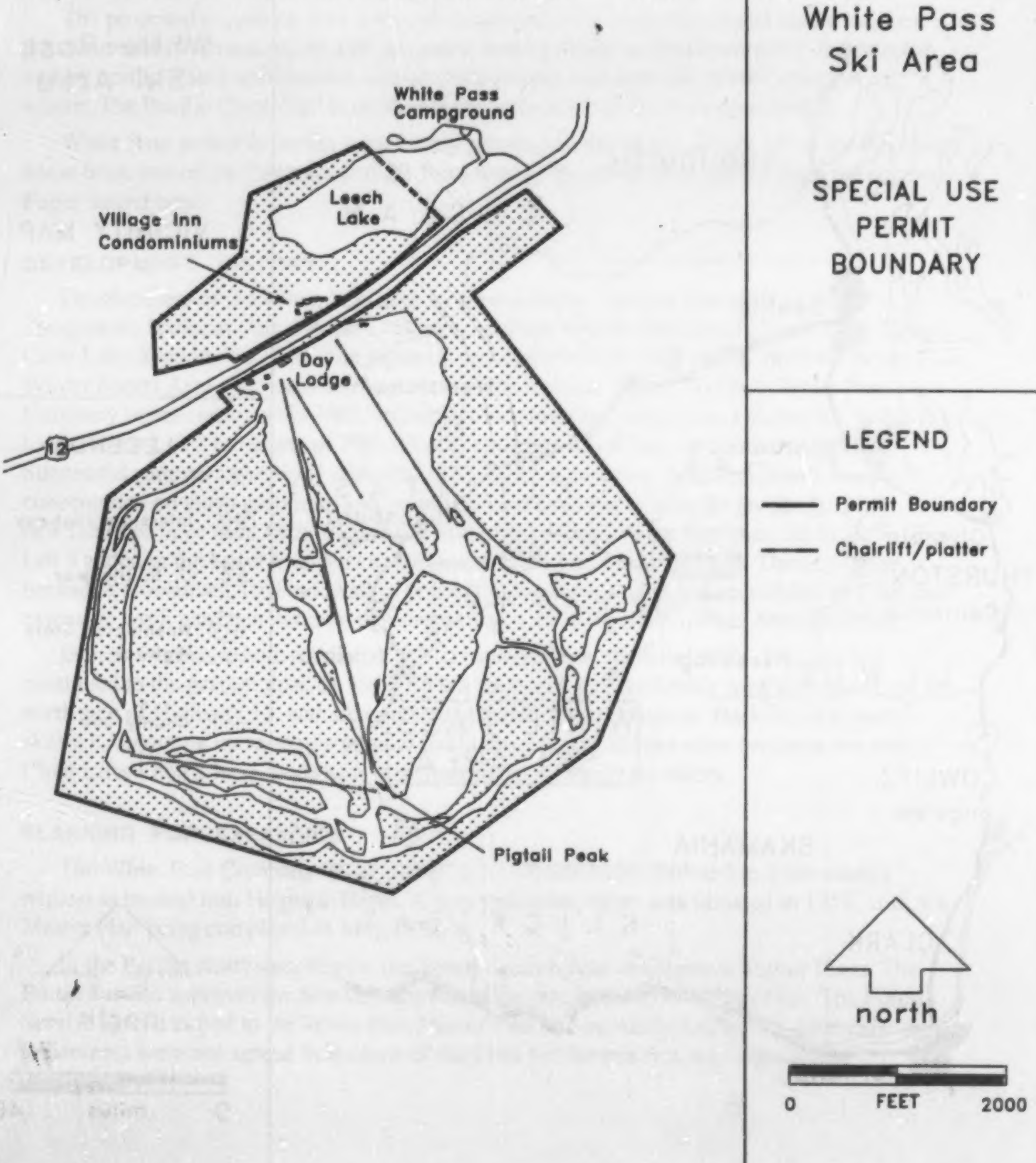
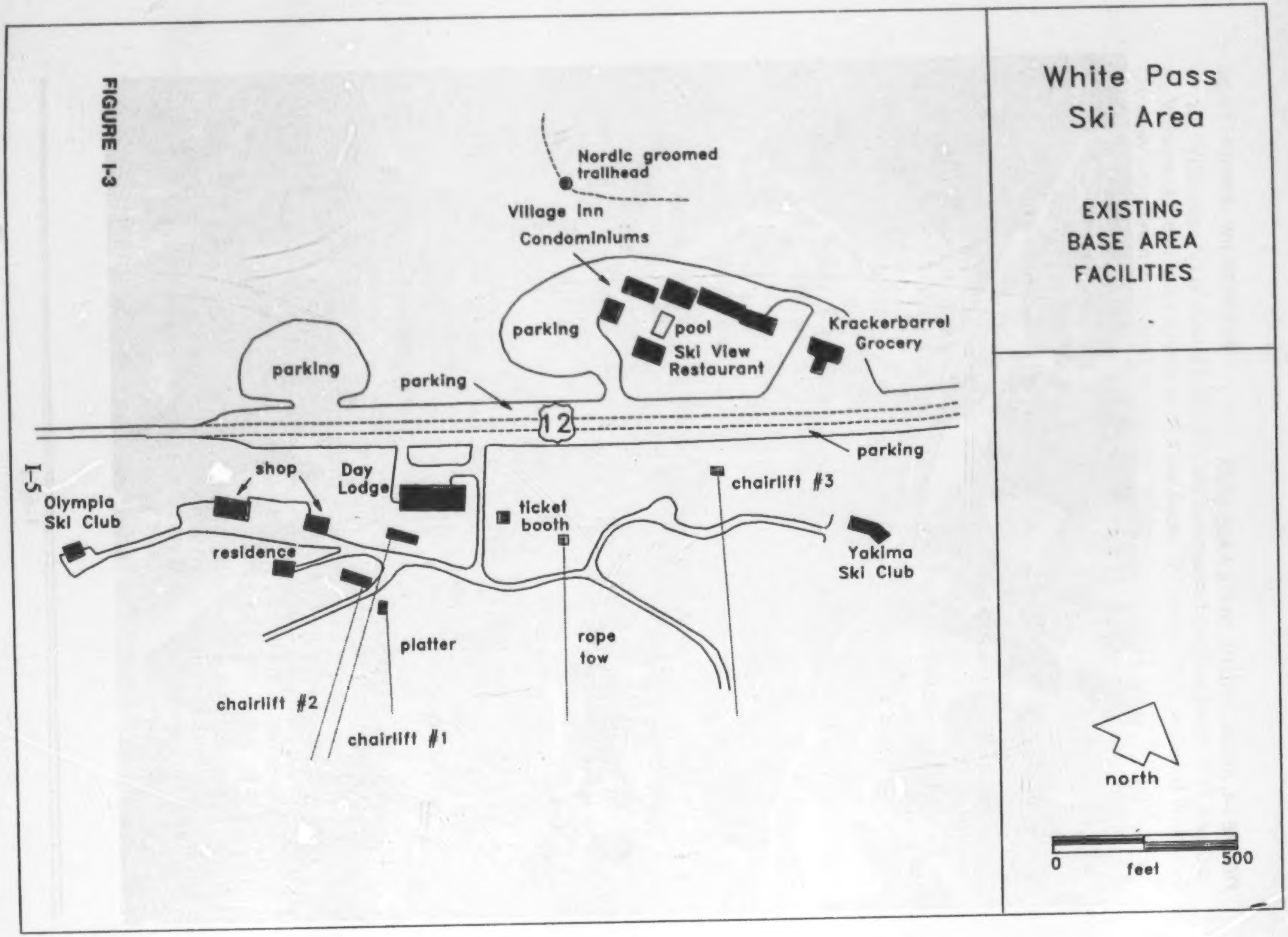

White Pass Campground
Leech Lake
Village Inn Condominiums
Day Lodge
12
Pigtail Peak
White Pass Ski Area
SPECIAL USE PERMIT BOUNDARY
LEGEND
Permit Boundary
Chairlift/platter
north
0
FEET
2000

FIGURE I-3

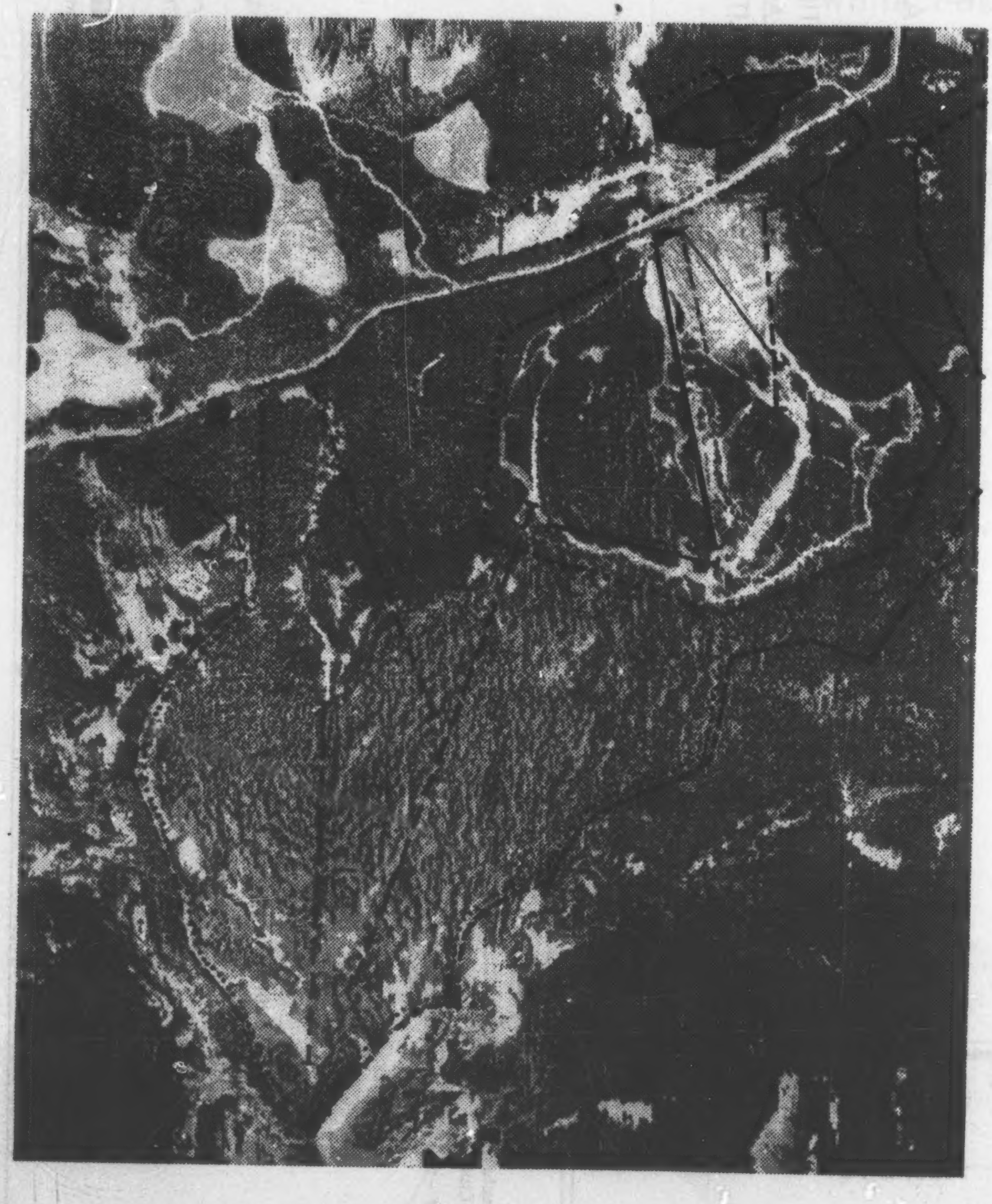


White Pass Ski Area

EXISTING BASE AREA FACILITIES

Nordic groomed trailhead
Village Inn Condominiums
parking
pool
Ski View Restaurant
Krackerbarrel Grocery
parking
parking
12
parking
shop
shop
Day Lodge
Olympia Ski Club
residence
ticket booth
chairlift #3
Yakima Ski Club
platter
rope tow
chairlift #2
chairlift #1
north
0
feet
500

FIGURE I-4, AERIAL PHOTO, WHITE PASS AREA



GOAT ROCKS WILDERNESS

The Wilderness Act of 1964 (PL 88-577) had incorporated the Goat Rocks Wild Area into the Wilderness Preservation System as the Goat Rocks Wilderness. This prevented White Pass Company's expansion to the south because the Wilderness boundary was within 1,000 feet of Pigtail Peak.

PORTION OF THE WILDERNESS DELETED

In an unprecedented action in the 1984 Washington State Wilderness Act [PL 98-339], Congress withdrew 800 acres in the Hogback Basin area from Wilderness designation. [See Fig I-5 Wilderness Boundary Revisions.] The Congressional Record for this act includes the following statement:

> "The 800 acres deleted from the existing Goat Rocks Wilderness have significant potential for ski development and should be managed by the Secretary of Agriculture to utilize this potential in accordance with applicable laws, rules, and regulations."

In an April 17, 1989 letter to Wenatchee Forest Supervisor Sonny O'Neal, Congressman Sid Morrison further clarified Congressional intent:

> Early in the 1980's, I was approached by numerous constituents through several meetings on the desirability of expanding the skiing potential at White Pass. Everyone involved was associated with the White Pass Ski Company as employees, officers, or customers. In other words, we were talking about downhill skiing and the potential for expanding the lifts, runs, and facilities to accommodate the crowds that were increasingly using this recreational opportunity.
>
> At the time, as you may recall, White Pass was on the map because of the Mahre twins and their stellar Olympic performances. As a non-skier, I was proud to show them off when they visited the nation's capital, and they were eager to share with me and congressional staff members the downhill potential for an expanded White Pass ski area. Other members of Congress gradually shifted from resistance to modifying existing Wilderness boundaries to realization (1) that an expanded White Pass area was truly the highest and best public use for that portion of the Goat Rocks, and (2) that I was more than willing to expand the Goat Rocks significantly to offset the modest loss of acreage in the summit area.
>
> I am also an enthusiatic supporter of cross-country skiing opportunities on public lands, however my history of the development of the Goat Rocks proposal would have to be written without significant mention of cross-country. In fact, I found it ironic that the discussion on cross-country was by the folks who use the White Pass chair lift to get access to the magnificent protected areas of the Goat Rocks. It has been my presumption that expanded lifts would not remove this option.
>
> My initial support in the Congress for the Goat Rocks modifications came from former Congressman Don Bonker. His district also included part of the White Pass summit area, and is heavily used by constituents coming from western Washington. I have every confidence that he would agree with the observations made in this letter on intent. Other members of the

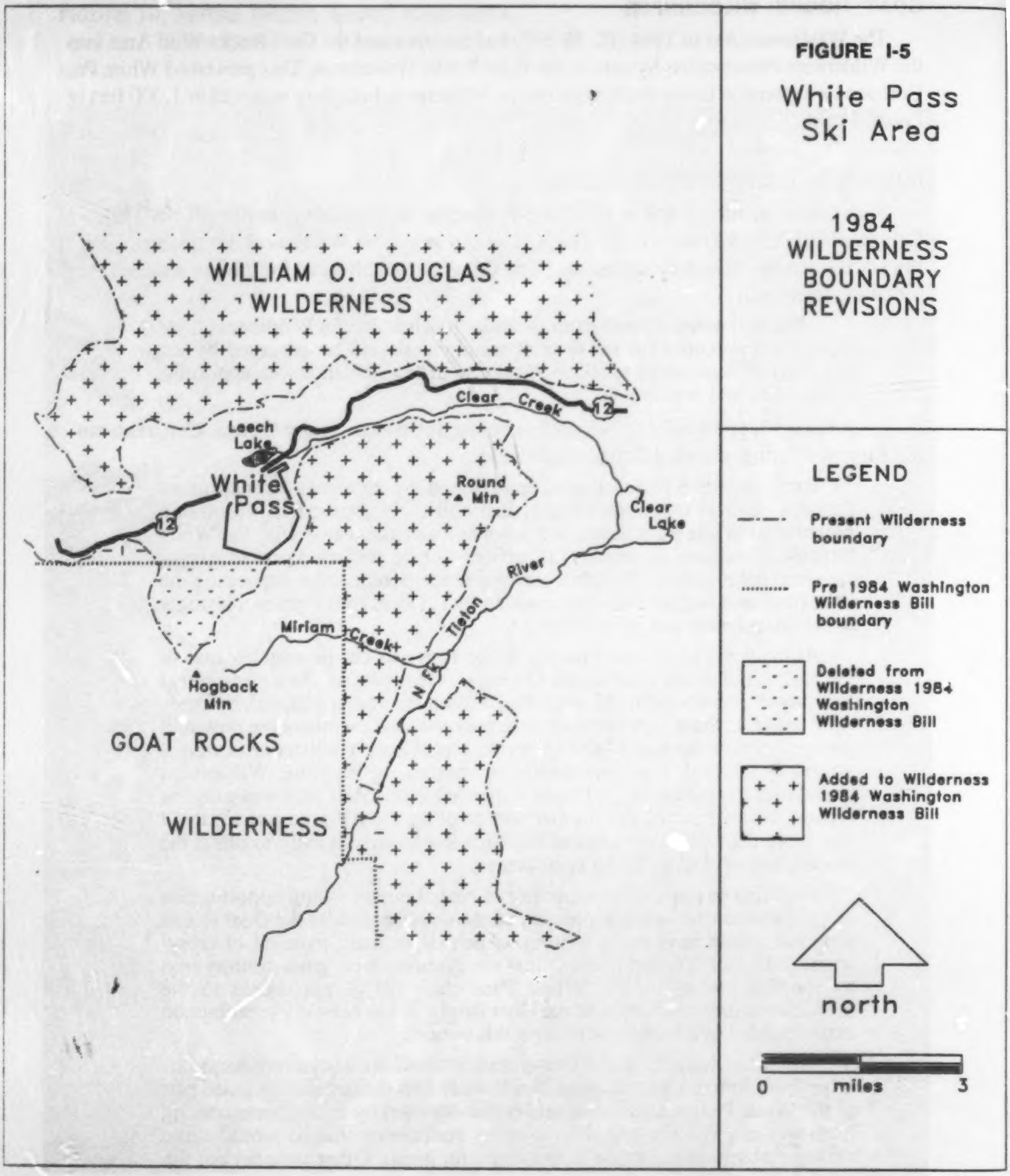


FIGURE I-5

White Pass Ski Area

1984 WILDERNESS BOUNDARY REVISIONS

WILLIAM O. DOUGLAS WILDERNESS
Leech Lake
White Pass
12
Clear Creek
12
Round Mtn
Clear Lake
River
Tieton
N Fk
Miriam Creek
Hogback Mtn
GOAT ROCKS
WILDERNESS
LEGEND
Present Wilderness boundary
Pre 1984 Washington Wilderness Bill boundary
Deleted from Wilderness 1984 Washington Wilderness Bill
Added to Wilderness 1984 Washington Wilderness Bill
north
0
miles
3

> delegation played a lesser role in the Goat Rocks proposal, but former Congressman Mike Lowry played a watchdog role on behalf of environmental interests. They were concerned about the precedent established by boundary modifications but agreed with the expansion of downhill skiing opportunities in exchange for significant expansion of Goat Rocks, acknowledging that any future use would be subject to an EIS.
>
> These comments reflect the series of meetings leading to, and the agreement reached on the Goat Rocks. None of us working on the proposal ever presented it in any other way, and I hope this letter clarifies our intent.

White Pass Company had originally requested removing 2,400 acres from the Wilderness (Hogback and Miriam Basins). Congress added 23,000 new acres to the Wilderness and deleted the 800 of Hogback Basin. With this action, that portion of the White Pass Company's Master Plan became available for study. In 1985, White Pass Company received a permit from the Forest Service to study 1,300 acres for possible expansion — the 800-acre Hogback Basin area and 500 acres already outside the Wilderness, down to Knuppenburg Lake. (Study permits are not issued for Wilderness.)

(Wilderness classification is only by Act of Congress, and although the writers of this EIS cannot predict what Congress may do, further declassification of Wilderness is unlikely.)

THE PROPOSAL

EXPANSION DESIRED

Many skiers are seeking high quality, short skiing vacations lasting two to four days. Attributes these skiers desire are dependable snow conditions, runs with a vertical drop of more than 2,000 feet, uncrowded conditions and modern facilities. Currently, many Washington State skiers go out of the state for these mini-vacations. The Pacific Northwest Ski Areas Association, the Washington State Winter Recreation Commission, the Department of Tourism, and the Department of Commerce and Economic Development are all concerned about losing Washington skiers to other states. The White Pass Company desires to market skiing to this group.

White Pass Company's primary reasons for expansion are: (a) to continue to provide quality skiing for present skiers; (b) to be able to meet the demand for additional skiers; and, (c) to become more competitive and to capture a greater share of the Washington State skier market. These goals would be accomplished by adding lifts and facilities, providing more and a better variety of skiing terrain, and providing high-quality, uncrowded alpine, and nordic skiing opportunities.

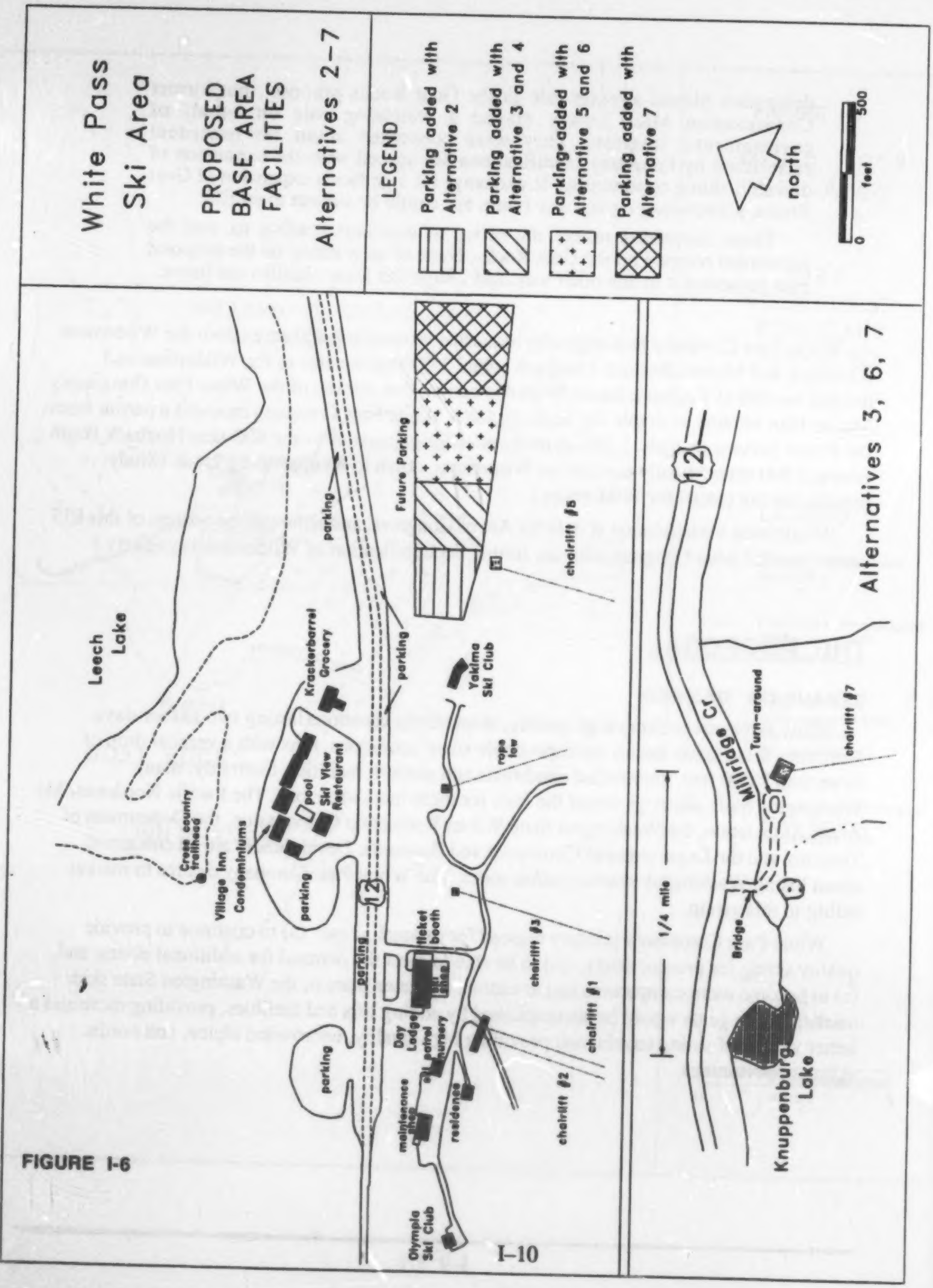

White Pass Ski Area
PROPOSED BASE AREA FACILITIES
Alternatives 2–7
LEGEND
▤ Parking added with Alternative 2
▧ Parking added with Alternative 3 and 4
⁘ Parking added with Alternative 5 and 6
▩ Parking added with Alternative 7
north
0
500
feet
Leech Lake
Cross country trailhead
Village Inn Condominiums
parking
pool
Ski View Restaurant
Krackerbarrel Grocery
parking
parking
Future Parking
chairlift #5
12
Yakima Ski Club
rope tow
ticket booth
Day Lodge
ski patrol
nursery
parking
parking
maintenance shop
residence
Olympia Ski Club
chairlift #3
chairlift #1
chairlift #2
Alternatives 3, 6, 7
12
Millridge Cr.
Turn-around
chairlift #7
Bridge
1/4 mile
Knuppenburg Lake

FIGURE I-6

EXPANSION OPPOSED

Some nordic skiers, especially those who enjoy the present unique setting of Hogback Basin, oppose expansion and added lifts. These skiers want to retain the current opportunities for experiencing isolation, independence, closeness to nature and self-reliance in a high-elevation, alpine setting — with easy access from Chair Lifts 1 and 2.

PROPOSAL

White Pass Company, Inc., proposes to add four chair lifts, two in the upper Hogback Basin, one at lower elevation starting 1/4 mile from Knuppenburg Lake on Highway 12, and Chair Lift 8 in the existing area. This would add 1,300 acres to the present development. [See alternative maps, chapter II, e.g., Figure II-7 and and Figure I-4.]

The proposal also includes building a mid-mountain warming hut to provide on-slope restroom and day lodge services. Base Area facilities and services would also be added to keep all services in balance. [See Figure I-6, Proposed Base Area Facilities.] No additional on-site overnight accommodations are proposed. Implementation of the development schedule hinges on the demand for skiing. Projected growth in winter sports activities indicates this proposal should be viable for 10—15-years

Forest Service policy requires that operation, management and marketing of condominiums be in a manner that assures the public full access to the majority of the units. Also, it limits guest stays to 30 days or less to insure the continuing availability of facilities for public use (FSM 2343.3). This precludes development of condominium units and seasonal use of White Pass makes hotel or motel development economically unfeasible.

With total expansion, the vertical drop of developed runs would increase from the present 1,500 feet available to 2,600 feet. Acres under permit would increase from the present 712 to 1,820 acres. Existing comfortable capacity of the Area is about 2,500 skiers per day; the Company projects this to increase by another 2,000. Existing lift capacity is about 3,700 skiers per day; the Company projects this to increase by another 3,660 skiers. The Area now averages about 100,000 alpine skier visits per year; that is projected to double to 200,800.

TYPES OF SKIERS

A wide variety of skiers presently enjoy the White Pass area. This includes both alpine and nordic skiers and a full range of experience levels. Further, some are seeking special or unique settings. In an effort to display the effects on the different types of skiers, and for consistency throughout this document, the following definitions are established.

ALPINE SKIER

The White Pass Ski Area was designed to accommodate alpine or downhill skiers. They use the lifts, the developed runs, and the various developed support facilities. The Telemark skier who uses the lifts and skis the developed ski runs is included in this group.

This type of skier desires a setting that is modified to accommodate large numbers of alpine skiers. Meeting and observing new people is sought by many. In this specialized setting testing of skills is important, as well as opportunities for a high degree of challenge and risk-taking. Being with family and close friends and experiencing nature also tend to be meaningful. To most, safety, comfort and convenience of lodge facilities, easy access, groomed runs and ski patrol are significant amenities.

Based on ability, experience and desire, alpine skiers are grouped into three classes in the White Pass Master Plan, beginner, intermediate and advanced. Each has a different preference for slope steepness and a different perception of crowding as measured by skier density.

TABLE I-1, ALPINE (DOWNHILL) SKIER SLOPE PREFERENCE

Class	Desired Slope %	Run Capacity skiers per acre
Beginner	15-25	25
Intermediate	25-40	15
Advanced	40 +	10

(Source: Forest Service Ski Area Design Brochure)

NORDIC SKIER

Nordic skiers have one thing in common: they all use some form of cross-country ski equipment. However, they are looking for a wide variety of experiences and different settings. Classification of Nordic skiers is not standardized, nor have defined capacity levels been established. Still, three groups are identified at White Pass based on the setting each desires.

GROOMED TRACK SKIER

This skier utilizes a track that has been established especially for the sport. Parallel tracks are packed in the snow by snow machine and the skier glides in them. Tracks usually have several configurations, including closed loops. The setting is generally flat to rolling terrain and close to developed facilities.

All experience levels use these tracks, beginner, intermediate and expert. The beginner may be a family with a young child just starting to ski; the expert may be a nordic racer looking for aerobic exercise. Social interaction between skiers is enjoyable for beginners but a detriment to the expert trying to maintain a racing pace.

Advanced skiers use a "skating" action that is detrimental to groomed tracks. At White Pass this is accommodated by packing the groomed tracks to the side of the trails with space left in the middle for the "skaters."

At White Pass, track skiers use a system of groomed trails on the north side of Highway 12 and around Leech Lake. The trails are developed by cutting paths through the woods. These skiers also use the support facilities provided for the alpine skier.

NON-GROOMED TRAIL TOURER

This type wants a more remote setting. Small group interactions and isolation from sights and sounds are both important. The skiers want interaction with nature, unprepared trails, and prefer to be away from motorized equipment (such as snowmobiles). They want few controls or regulations, though trail markings are desirable. They also use the base area facilities provided.

In the White Pass area, non-groomed touring occurs in the William O. Douglas Wilderness towards Sand Lake to the north, on the Yellowjacket road system (#1284) towards Cortright Point to the west, and around Dog Lake to the east. None of these areas have marked trails. [See Figure I-7, Study Area.]

BACKCOUNTRY SKIER

The backcountry skier is looking for a semi-primitive to primitive setting with untracked snow. Though evidence of others is acceptable, a natural environment with low interaction between users is important. Closeness to unmodified nature is important. Challenge and risk are desired in access. uncertainty of weather, terrain, etc. Feelings of self-reliance on outdoor skills and independence are important. They use support facilities when provided.

Three sub-types of backcountry skier are identified at White Pass. They are separated because of the kind of terrain and settings they prefer.

Extended Tourer

This is the winter, wilderness camper. The areas used are primitive settings in Wilderness both north and south of White Pass. This group generally desires the most isolation, particularly when camped.

Telemarker

This is a specialized group that uses the steeper headwalls to make telemark runs in an undisturbed setting. They use Hogback Ridge and go into Shoe Lake and Miriam Creek Basins. They use the chair lift as an aid to get to their chosen area.

Day Tourer

This group likes remote settings but prefers more gentle terrain. They also use the chair lift to reach their area. Feelings of isolation, challenge and risk are not as important . They also like the ease of access and gentle terrain of Hogback Basin and similar areas.

SKIER DEMAND

NATIONAL AND REGIONAL SITUATION

White Pass use is influenced not only by the local demand for skiing but also by the regional and national situation. Mel Borgersen Consultants, in "Supplement Two to the 1978 Master Plan Program for White Pass Ski Area" (September, 1986), summarized the national and regional markets:

> THE NATIONAL ALPINE MARKET
>
> Alpine skiing during the 1960's and 1970's expanded in the United States. This has been documented by the increase in the number of ski areas, the increase in the ski area capacity, as documented by the sale of uphill transportation systems, the increase in slope capacity, and the growth in skier attendance.

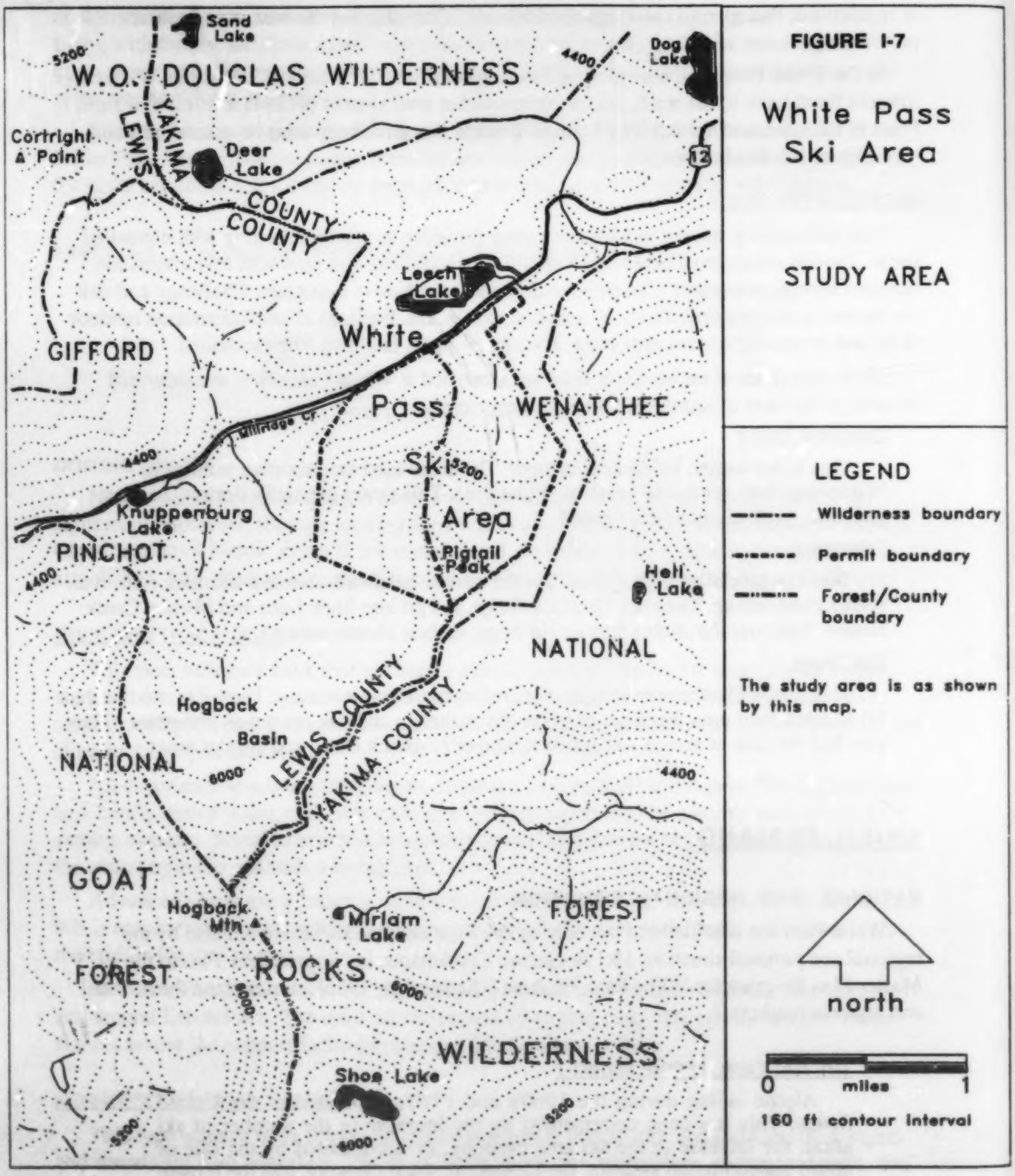


FIGURE I-7

White Pass Ski Area

STUDY AREA

Sand Lake
W.O. DOUGLAS WILDERNESS
Dog Lake
5200
4400
Cortright Point
YAKIMA
LEWIS
Deer Lake
COUNTY
COUNTY
12
Leech Lake
White
GIFFORD
Pass
WENATCHEE
Millridge Cr.
4400
Ski
5200
Area
Knuppenburg Lake
PINCHOT
Pigtail Peak
4400
Hell Lake
NATIONAL
Hogback
LEWIS COUNTY
YAKIMA COUNTY
Basin
NATIONAL
6000
4400
GOAT
Hogback Mtn
Miriam Lake
FOREST
FOREST
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Forest/County boundary
north
0
miles
1
160 ft contour interval

The study area is as shown by this map.

This growth in ski areas, skier capacities, and skier visits averaged nearly 10% per year. Growth was interrupted only by unfavorable weather conditions which created inadequate snow, poor travel conditions, area closures, etc.

Since the 1978-79 winter season, the skier visits on a National basis have reached a plateau, with only slight changes each winter primarily due to weather. The 1980 season experienced a severe drought in the west, which greatly affected the National totals.

Various studies have placed the total number of alpine skier visits in the United States at approximately 50 million. Actual visits were reported by National Ski Areas Association's National Business Survey, as follows:

TABLE I-2, VOLUME OF BUSINESS FOR THE TOTAL U.S. SKI INDUSTRY

Year	Million Skier-Visits	Index (78-79 base)
1978-79	50.197	100
1978-80	48.200	96
1980-81	39.700	79
1981-82	50.718	101
1982-83	46.861	93
1983-84	50.630	101
1984-85	51.354	102
1985-86	51.921	103
1986-87*	53.700	107
1987-88*	55.000	110

[Borgersen: Table 2. *Additional data supplied by Borgersen, 1989]

While the National market has plateaued for alpine visits, the individual performances of ski areas varied greatly. As previously stated, micro weather conditions are very important. Market share is also greatly influenced by the quality of services provided the skiing public at each ski area. The skiing public has come to expect expertly-groomed and compacted slopes and trails. They are less tolerant of overcrowding and long waits in lift lines.

An annual lift revenue and skier visit survey by Mel Borgersen Consultants reveals the well-managed ski areas which are catering to the wishes of the public continue to expand their facilities and services and capture a larger share than those ski areas providing a marginal-quality experience.

THE REGIONAL ALPINE MARKET

The growth in skier visits in the Pacific Northwest has not equaled the growth in some other sections of North America. [See Table I-3.] There are a number of reasons for this. Major ski resorts with complete vacation facilities are attracting a growing number of ski vacationers who spend 3-14 nights on a winter holiday. Colorado, Utah and California (and British Columbia) have participated in this growing market.

The regional market has been greatly impacted by the Whistler-Blackcomb development in British Columbia. Located only 70 miles north of Vancouver, B.C., this multi-million-dollar complex has attracted skiers from a large market by providing destination resort facilities. It has captured a sizeable portion of the Washington State market and has greatly reduced the number of British Columbia skier visits to Washington ski areas.

TABLE I-3, SKIER VISITS: 9 WESTERN STATES, 1968–69 TO 1984–85
(MILLIONS OF SKIER VISITS)

State	1968-69	1984-85	% Increase
Washington	1.53	1.70	11
Oregon	.52	1.46	181
California	2.48	6.50	162
Idaho	.46	1.00	117
Nevada	.13	.34	161
Montana	.32	.80	150
Wyoming	.13	.36	177
Utah	.34	2.52	641
Colorado	2.34	9.04	286

[Borgersen: Exhibit 1]

(Source: Skier Visit Reports from the US Forest Service)

Mt. Bachelor, in Central Oregon, has had a phenomenal growth and enjoys approximately one-half million skier visits per year. Its chief market is the Pacific Northwest and California.

Sun Valley [Idaho] continues to enjoy more skier visits from Washington State than from any other state in the Union....

The Whistler-Blackcomb, Mt. Bachelor, Sun Valley, and (possibly) Early Winters resorts will have a long-range beneficial effect for all ski areas in the Pacific Northwest. Somewhat remote from very large population centers, the Pacific Northwest will gradually cater to a larger market as the quality of skiing and the long season come to the attention of skiers in other Western States and the Orient.

THE WASHINGTON STATE SITUATION

Borgersen, in "Supplement Two to the Master Plan," notes:

In the eleven Western States, only California and Colorado have more resident skiers. There is no evidence that the number of active skiers in Washington has not increased in some measure, similar to that in other states. Other states have been very successful in attracting Washington State skiers to their ski areas, which largely accounts for the no-growth figures in Washington.

The existing ski areas in Washington State have the potential for expansion, but to a limited amount. Some ski areas have already reached their comfortable theoretical capacity on the basis of the natural resources available.

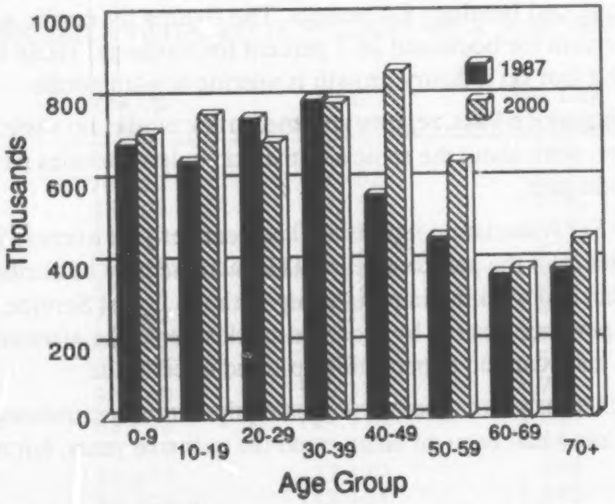
The start-up costs for a new ski area have become very high and tend to eliminate any potential new area unless the natural resources and all

> supporting conditions are very superior. With the exception of Early Winters [in the Methow Valley in North Central Washington], there is practically no potential for the development of any other major ski resort in the State of Washington.

Since Borgersen's 1986 Master Plan Supplement, Crystal Mountain, Snoqualmie Summit, Mount Baker and Steven's Pass ski areas have all added or improved facilities at their base areas and have improved some of their chairlifts. Mission Ridge is in the process of planning for improvements there. These actions have been in response to skier demand as well as to the need to upgrade and modernize.

The population of Washington State is projected to increase from 4,480,000 in 1987 to 5,250,000 in the year 2000, a 17% increase. The majority of this growth is expected to be in the Puget Sound region (550,000 people). The median age will increase from 32.5 to 36.8 years. These relationships are shown in Figure I-8.

FIGURE I-8, WASHINGTON STATE POPULATION AGE STRUCTURE, 1987—2000



(Source: 1986 Washington State OFM Forecasts)

Kevin McCarthy, Manager, White Pass Company, makes the following observation:

"If we combine facts, we may see a trend to understand the skiing habits of Washington State skiers. Washington has more resident skiers than all western states aside from California and Colorado. Yet during a span from 1968—1985 Washington State skier visits only increased from 1,530,000 skier visits to 1,700,000 skier visits annually, while the total for all western U.S. states grew from 8,250,000 visits in 1968 to 23,720,000 skier visits in 1985. It is also a well-accepted fact that the number of skiers living in the State of Washington has increased appreciably since 1968 due to at least two main facts: a much greater population base of the state, and the continued high interest in the sport of skiing throughout this time frame. So where do the people ski? Other western states! And why? Because of the tremendous growth in available ski facilities. Therefore, it is the belief of White Pass Company that there are sufficient skiers in the State of Washington to support an expanded ski facility at White Pass, and that an expanded facility at White Pass will provide the skiing experience that Washington skiers are experiencing at resorts in other western states."

NORDIC SKI DEMAND

Comprehensive figures for nordic skiers in the United States are not available. Chris Frado, President of the Cross-Country Ski Area Association of America, indicated that specific figures had not been developed. Still a trend can be noted, based on evidence from several sources in the cross-country skiing business.

Nordic ski centers that have applied aggressive marketing schemes and have consistently provided facilities desired by the skiers have generally reported an upward trend in the number of skiers. By far, this trend is in groomed-track skier use.

According to the February, 1989 issue of *Skiing Trade News* , most equipment and clothing sales showed healthy unit increases. Alpine sales showed increases for skis of 4.3 percent, boots 1.3 percent, and bindings 8.4 percent. The figures for nordic sales were 7.5 percent for skis, 11.4 percent for boots and 26.1 percent for bindings. These figures can also be interpreted as showing that ski industry growth is veering toward nordic.

Pack West, near Snoqualmie Pass, reports groomed-track nordic ski visits for the 1986—87 and 1987—88 seasons were about the same and the ski equipment sales have been pretty stable with little trend indicated.

The Methow Valley Ski Association reports a 20 percent per year average increase in groomed-track ticket sales over the past five years. This increase may be attributed to an aggressive marketing plan and working in partnership with the Forest Service, as well as their providing the type of experience desired by groomed-track skiers. The association sold nearly 20,000 skier day passes last year and expects this up-trend to continue.

Asplund's, a Wenatchee-based outdoor recreation equipment store, indicated that nordic ski equipment and clothing sales had been on an up-trend the past five years, but now seem to have leveled off.

Seattle REI stores report that nordic equipment sales have increased 25 percent over the last three years. Nordic sales break down into 4% for ski skating, 40% for backcountry (telemarking) and 56% for general use.

Part of this apparent, if uneven, trend of increased nordic skiing can be attributed to what seems to be a connected trend away from alpine skiing in some parts of the country. Nordic skiing is attractive to a growing number of people for several reasons. (1) Equipment and tickets are relatively inexpensive compared to alpine skiing. (2) It is, or can be, simpler and easier to do. (3) It can easily be a family sport without costing too much. (4) Skiing is generally available wherever there is snow. (5) The trend toward physical fitness makes it an attractive winter activity.

Furthermore, as with most other competitive consumer-oriented businesses, the areas that develop aggressive marketing strategies and provide the facilities desired by the customers can expect an increase in use.

WHITE PASS SITUATION

SKI AREA USE

Alpine skier attendance has increased very little at White Pass during the last 20 years. See Table I-4 and Figure I-9, Alpine Skier Visits. Walk-up sales are the number of daily lift tickets sold during the ski season. Total skier visits includes walk-up sales, groups, season lift ticket holders, passes, races and complimentary tickets. For the seasons up to 1983—84, skier visits are based on car counts. For the four seasons 1984-85 through 1987-88, total skier visits data are based on actual counts. For other years, 25% is added to the walk-up sales figures. (Total skier visits for those years when data were collected averages approximately 25% more than walk-up sales.)

Table I-4 also shows cumulative snowfall for the ski season. Note that attendance dropped significantly during the snow drought years of 1976-77 and 1980-81, as it did at other western ski areas.

TABLE I-4, ALPINE SKIER VISITS, WHITE PASS SKI AREA, 1968-1988

Year	Walk-up Sales	Total Skier Visits	Ave. Day W-E & Holiday	Snowfall
68-69	62,094	77,617	1,150	
69-70	73,722	92,152	1,410	
70-71	68,923	86,154	1,276	
71-72	61,513	76,891	1,139	
72-73	52,724	65,905	976	
73-74	66,019	82,524	1,223	
74-75	76,662	95,827	1,420	
75-76	84,932	106,165	1,573	
76-77	30,895	38,619	572	102"
77-78	96,269	120,336	1,783	
78-79	99,292	124,115	1,839	144"
79-80	75,848	91,060	1,349	159"
80-81	29,975	37,469	555	112"
81-82	90,481	113,101	1,675	234"
82-83	89,006	111,257	1,648	186"
83-84	72,699	90,874	1,346	182"
84-85	82,826	101,449	1,502	170"
85-86	65,104	81,548	1,208	180"
86-87	77,281	97,365	1,442	143"
87-88	77,358	97,402	1,443	284"

(Source: White Pass Company Records)

FIGURE I-9, ALPINE SKIER TREND, WHITE PASS SKI AREA, 1968-1988

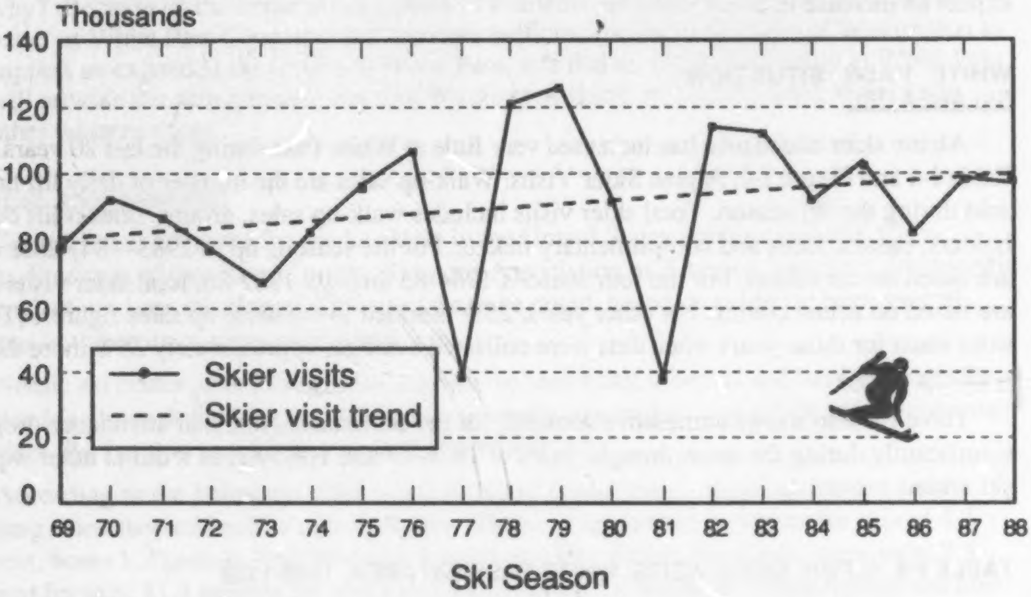
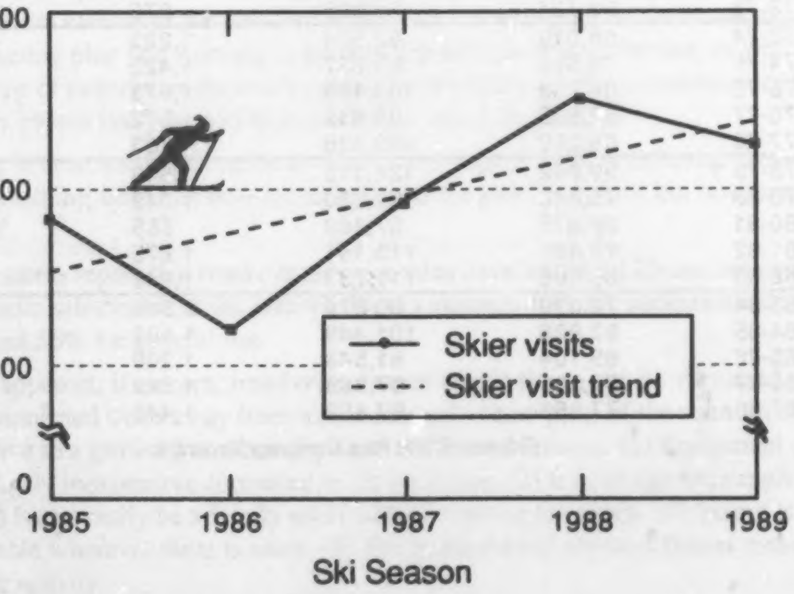


FIGURE I-10, GROOMED TRAIL SKIER TREND, WHITE PASS SKI AREA, 1985-1989



An analysis of the 1977-78 season shows that approximately 80% of the total attendance occurred on weekends and holidays. "Average Day, Week-End and Holiday" figures in Table I-4 is 80% of the total attendance for the ski season divided by 54, the number of weekend and holiday days in the White Pass average season (160 days). The mean for average weekend day use since 1976-77 is 1,524 (not including low-snow years). This is about 30% of the Ski Area slope capacity and is consistent with ski area average use in the Pacific Northwest (31%), as noted in "Social and Economic Effects of the Proposed Ski development at Early Winters," by Goeldner and Farwell, 1978.

NORDIC USE

GROOMED TRAIL

The White Pass Company's groomed-track facilities are well-known in nordic skiing circles and are considered by many to be premier facilities. The company has been aggressive in providing support for nordic skiers and plans to expand this amenity.

The company currently administers approximately 15 Kilometers (9.3 miles) of groomed, double-tracked, nordic ski trails on the north side of the highway. These trails provide both groomed, packed ski tracks plus a median area used by "skaters." Table I-5 summarizes measured use for the last four years, Figure I-10 displays the trend of this use.

TABLE I-5, GROOMED NORDIC TRAIL USE, White Pass

	Weekend		Midweek	Season
Year	Average	Total	Total	Total
84-85	80	4,301	1,392	5,693
85-86	57	3,055	1,371	4,426
86-87	77	4,157	1,686	5,843
87-88	83	4,482	1,804	6,286

(Source: White Pass Company)

During the 1988 Christmas season, an estimated 2,500 skiers used this trail system. There are no industry standards for determining capacity of nordic trail systems, though variables such as terrain, trail length and parking affect it. The capacity of the White Pass system is unknown, but skiers have described the trails as being crowded. White Pass nordic skiers share the same parking area with the alpine skiers.

NON-GROOMED TOURING

Currently there are no marked, non-groomed nordic ski trails in the White Pass study area. However, skiers utilize the area north of the Pass in the William O. Douglas Wilderness to Sand Lake, the area around Dog Lake, and the Yellow Jacket Road system (#1284). [See Figure I-7.]

BACKCOUNTRY

All three types of backcountry ski use occurs in the White Pass area. Very few people in the Extended Touring category leave from the Ski Area, though they pass through the study area on their way to destinations to the north in the William O. Douglas Wilderness and to the south in the Goat Rocks Wilderness. The other two types, Telemark and Day Touring, both use the ski lift system to reach the top of the ski area. From there they travel to their selected areas, Telemarkers to the headwalls and Day Tourers to the upper basins.

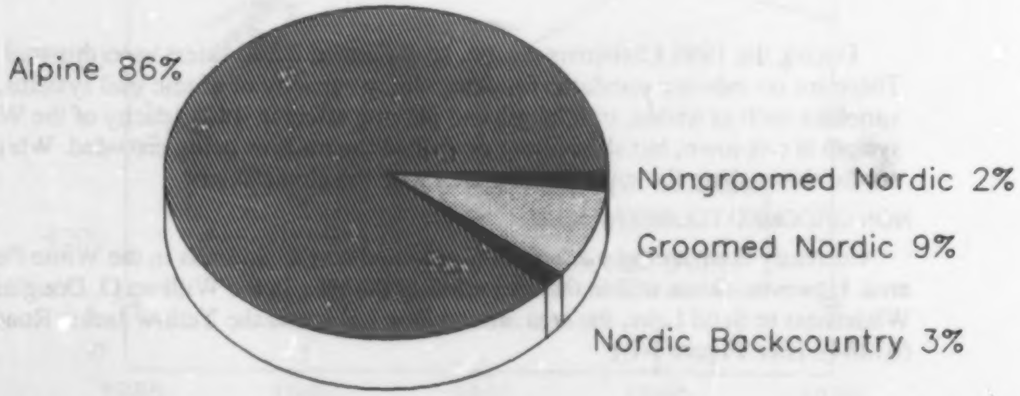
Data relating to actual numbers of people participating in Telemarking and Day Touring in Hogback Basin are not available. However, in this area it is estimated that 99% of these skiers utilize the one-way lift ticket offered by the White Pass Company. It is also estimated that 50% of these tickets are purchased by backcountry nordic skiers (and 50% by alpine skiers making one trip down the groomed slopes). Using these assumptions, Table I-6 shows the number of backcountry skiers, by month for the last 4 years.

TABLE I-6, BACKCOUNTRY SKIERS AT WHITE PASS

Month	Season				
	84-85	85-86	86-87	87-88	88-89
November	150	83	55	0	90
December	215	175	184	298	194
January	232	253	306	580	202
February	187	187	269	316	131
March	174	133	205	224	91
April	76	63	84	103	56
TOTALS	1,034	894	1,103	1,521	764

(Source: White pass Company Ticket Sales)

FIGURE I-11, AVERAGE ANNUAL SKIER USE, by type



THE EIS PROCESS

EA

White Pass Company's application was received and an Environmental Assessment (EA) was initiated in 1985. The draft EA was completed in 1988. The Forest Service and interested parties raised several questions. During the review of this draft EA the Forest Service decided that, due to the controversy generated and because the application proposed development in what was previously Wilderness, an Environmental Impact Statement would be required to examine a range of alternatives in greater depth and to intensify the public review.

ID TEAM

The USDA, Forest Service, Wenatchee National Forest is the lead agency for development of this EIS. The Wenatchee National Forest Supervisor, as administrator of the White Pass Special Use Permit, assembled an interdisciplinary team (ID Team) to prepare it. The team includes specialists from three National Forests and the Pacific Northwest Regional Office. Various state and local agencies and the White Pass Company are cooperating and assisted in this assessment.

SCOPING

Formal scoping for this EIS was initiated in the Federal Register on August 18, 1988. On October 7, the Forest Service mailed scoping packets to the individuals and groups who had previously been involved. [See Appendix A.] The public was asked for input. Issues were addressed and the range of alternatives was analyzed. Two public meetings were held in November, one in Yakima and one in Randle, to explain the EIS process and to gather additional information on issues and alternatives.

This scoping period generated 197 responses. The Forest Service evaluated and analyzed these and the 200 responses from the previous Environmental Assessment action. A summary of this analysis is included as Appendix B. From the analysis the team developed the list of issues, concerns and opportunities addressed in this EIS. This list was then used to formulate "Comparison Criteria" for selecting a preferred alternative.

ISSUES

The ID Team has identified, through the scoping process, seventeen Issues, Concerns and Opportunities to be addressed in this EIS. Briefly, they are:

1. What will be the effects on the unique setting of the Hogback Basin Area?
2. Are there opportunities in the Hogback Basin area for dual-use skiing, i.e., for both alpine and nordic?
3. What are the potential impacts on the Goat Rocks Wilderness, in summer as well as in winter?
4. What are the physical and social impacts of development of trail and interpretive activities in the expansion area?

5. What are the physical and visual impacts on the Pacific Crest National Scenic Trail?
6. What is the economic viability of ski area expansion?
7. What are the opportunities to provide additional recreational activities? What are the needs, capabilities and opportunities available and what is their suitability? Including non-pay, non-groomed nordic skiing and summer and winter activities?
8. What are the physical and biological impacts?
9. Will there be additional hazards to skiers?
10. Will backcountry skiers be displaced? What will be the effects of this displacement?
11. Are there additional backcountry skiing areas that can substitute for Hogback Basin?
12. What will be the visual impact from Highway 12? From the William O. Douglas Wilderness?
13. Will the present and proposed support facilities be adequate?
14. What will be the amount of local revenue generated?
15. What will be the social impacts of expansion on local communities?
16. What will be the impacts on wildlife habitat?
17. What will be the cultural and/or spiritual impacts on the Indian Nations, including the Yakima Indian Nation, by expansion in Hogback Basin?

The ID Team then used this list to develop criteria for measuring impacts, to develop mitigation measures, and to formulate alternatives so each of these issues would be satisfactorily resolved in at least one of the alternatives analyzed.

It was recognized that opening either the Skate Creek Road or Cayuse Pass in the winter, which was originally considered an issue, would improve access to Puget Sound skiers. This would improve the competitive position of White Pass, but it is not believed to be essential for the viability of the White Pass operation. Also, these decisions will be made by other governmental bodies and are independent of the development decision being made for White Pass.

COMPARISON CRITERIA

The ID Team synthesized this list and selected the following five areas as being most important for comparing the alternatives. They are:

1. ADDITIONAL RECREATION OPPORTUNITIES

Display the possibility of providing the appropriate mix of recreation activities (including alpine and nordic skiing) in the immediate areas as well as in surrounding areas. Consider supply/demand, and summer and winter activities. The goal is to provide for a variety of activities in desired settings to the point that user-group conflicts can be resolved and other management objectives can be achieved.

2. UNIQUE SETTING

Identify the unique elements of the Hogback Basin setting. Measure the effects of each alternative on these elements.

3. PHYSICAL AND BIOLOGICAL EFFECTS

Identify the potential effects on the physical and biological environment. Assume mitigation measures are in place and display the expected consequences for each alternative.

4. WILDERNESS IMPACTS

Identify potential impacts of each alternative on Wilderness, especially on the Shoe Lake and Miriam Basin areas. Wilderness parameters will be used to display these effects, i.e., visitor days/visits, numbers of encounters, levels of acceptable change, etc. Summer and winter impacts will be considered.

4. DISPLACED BACKCOUNTRY SKIERS

Identify the amount of displacement that would occur with each alternative. Assess the effects of this displacement.

ASSUMPTIONS

Several assumptions were made in the planning process. They apply to all the alternatives:

1. Sufficient skier demand exists to warrant further examination of proposed alpine skiing facilities and also expansion of nordic skiing opportunities. With additional facilities or opportunities provided, increased skier visits are expected.
2. Interest in developing and expanding skiing at White Pass will not diminish. Skiers desire expanded opportunities. White Pass Company wants to provide a quality skiing experience and to be more competitive in the skiing marketplace. Pressures for expansion will continue.
3. White Pass Company is financially able to proceed with additional ski development. The Company is an acceptable permittee and will be allowed to continue as permittee.

THE EIS

CONTENT

This EIS describes the affected environment in the White Pass Company's proposed expansion, identifies ten feasible alternatives, including full development as proposed, including the No Action (No Change) alternative, and displays the environmental consequences of implementing each alternative. Three of these are summer management strategy alternatives.

The EIS discloses off-site impacts each alternative might have on community facilities. The socio-economic and other environmental conditions in the surrounding communities are displayed to the degree these effects were identified during the scoping and public involvement process.

The ID Team, with input from specialists outside the team, conducted the environmental analyses comparing the impacts of the various alternatives. All physical, biological, economic and social factors pertinent to the decision have been considered in this systematic, interdisciplinary approach.

This Environmental Impact Statement fulfills the requirements of both the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA) processes in connection with the selection of an alternative for action on National Forests.

DECISION

Public response and comments to the DEIS are requested. These comments will be evaluated, analyzed and summarized. Changes and modifications will be made in the EIS to address this public response. Then a Final Environmental Impact Statement (FEIS) will be published. The material in the FEIS will lead to a decision. The decision to be made is, which of the seven winter alternatives in this EIS (Alternatives 1—7) and which summer management strategy (Alternatives 8—10) will be implemented. More than one alternative (for winter and for summer) will be selected and published in a "Record of Decision" attached to the FEIS.

AFTER THE EIS

Preparation of an EIS is one step in the planning process. Other decisions to be made by the Forest Service, as a result of the analysis in this EIS and other information, involve whether National Forest System lands should be used for the requested activity and, if so, with what constraints. If a decision is made to issue an amended Special Use Permit, other steps will be required before any development can occur.

If an alternative is selected which permits skiing expansion, the Forest Service will issue an amendment to the current Special Use Permit to White Pass Company, Inc., but will require the Company to agree to conduct the expansion in accordance with the "Record of Decision," and to have the financial capability to accomplish the expansion.

This amendment to the permit would also require White Pass Company to prepare a detailed Site Development Plan, including a Development Schedule, to be approved by the Forest Supervisor, showing locations and construction details, and application of mitigation measures. Each construction activity would require an engineering technical report and/or a site-specific analysis for the project. If evidence is found of impacts that might be greater than estimated in the FEIS there would be ample opportunity to require further mitigation or, in an extreme case, not allow the project.

OTHER PERMITS

In addition to the Special use Permit, various other permits and approvals would be needed to expand the White Pass Ski Area. They include:

For Yakima County:

- sewage disposal permit

For Lewis County:

- public water supply permits
- building permits
- sewage disposal permit ("alternate system" for mid-mountain warming hut)

For the State of Washington:

Department of Ecology:
  - water right permit
  - waste discharge permit
  - water quality certification

Parks and Recreation Commission:
  - ski lift and equipment certification

Department of Wildlife:
  - hydraulics project approval
  - effects on T, E. & S species of plants and animals

Department of Transportation
  - access permit

Advisory Council on Historic Preservation
  - cultural resource clearance

MONITORING

After approval of the permits and acceptance of the detailed plans, the requirements established by the Forest Service will be monitored through annual operating plans that White Pass Company will submit to the Forest Service for approval.

CHAPTER II
ALTERNATIVES

This chapter describes the process used to develop the alternatives; describes each alternative; lists management direction and mitigation to reduce adverse impacts; and, summarizes the impacts and effects of each alternative.

In accordance with Council of Environmental Quality (CEQ) regulations, this EIS identifies and analyzes a reasonable range of alternatives in order to provide the decision maker with a clear basis for choice and the public with a basis for comment. By CEQ definition, reasonable alternatives are those that eliminate or reduce the level of environmental impacts and are, at the same time, both technically and economically feasible and serve the overall purposes of the proposed action from a common-sense perspective.

DEVELOPMENT OF ALTERNATIVES

INITIAL STEPS - EA AND SCOPING

The process of developing alternatives began with the preparation of the Environmental Assessment. The scoping announcement for this EIS provided a list of 8 alternatives to be used as examples. These were:

1. No Action
2. Build Chair Lift 7 and mid-mountain warming hut.
3. Build Chair Lift 5 and mid-mountain hut.
4. Build Chair Lifts 5 and 6, and mid-mountain hut.
5. Build Chair Lifts 5 and 7, and mid-mountain hut.
6. Build Chair Lifts 6 and 7, and mid-mountain hut.
7. Build Chair Lifts 5, 6 and 7, and mid-mountain hut.
8. Construct mid-mountain hut and develop cross-country ski trails in Hogback Basin area.

The public, interested groups, and government agencies were asked to comment on these alternatives, to suggest additional alternatives, and to identify significant issues to be addressed in this EIS.

As described in Chapter I, the 197 public responses received during the scoping period were analyzed and evaluated. Using this analysis the ID Team developed the list of significant issues, concerns and opportunities shown on pages I-23, 24. This list was the basis from which the ID Team formulated seven winter development alternatives *plus* three summer management alternatives. These ten alternatives provide a range of options that responds to the issues identified. All ten will be analyzed and compared in this EIS.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

NEPA regulations require that agencies rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss the reasons for eliminating those not developed in detail. In addition to the ten alternatives studied, six others were considered:

1. Expand White Pass Ski Area by building Chair Lifts #6 and #7.

This alternative was one of the example alternatives included in the scoping documents. It was not studied in detail because it is not practical. This expansion would essentially split the ski area in two. It would be very inconvenient to get skiers, especially beginning and intermediate skiers, to Chair Lift 6, and just as inconvenient to get from the bottom of chair 6 back to the existing area.

2. Build no chair lifts in Hogback Basin but provide snow cat skiing in the Basin.

Skiers would use existing chair lifts to the top of Pigtail Peak then be transported to Hogback Ridge by snow cat. This alternative would provide opportunities in Hogback Basin for some alpine skiers, more backcountry skiers, and possibly groomed-track skiers. This means of access is generally used only to promote an area and gives only limited access. It would impact the present non-motorized setting, would not accommodate the access needs of most alpine skiers, and would not be economically feasible. It was not developed because it is not considered economically feasible.

3. Expand White Pass Ski Area into areas other than Hogback Basin.

This alternative would leave Hogback Basin undeveloped but would provide additional alpine skiing by expanding elsewhere. Two areas were mentioned by the public, Miriam Basin and the Twin Peaks area to the east. Miriam Basin was considered for development in White Pass Company's 1979 Master Plan but is within the Goat Rocks Wilderness. The slope to the east also runs into the Wilderness and development would impact the Pacific Crest National Scenic Trail.

Areas with terrain suitable for alpine ski development in the vicinity of White Pass and adjacent to the present and proposed permit boundaries are in the Goat Rocks or William O. Douglas Wildernesses. These areas are unavailable for any commercial development or study for commercial development due to their legal Wilderness classification. The Wenatchee National Forest would deny requests for a study permit as this type of activity would not be compatible with Wilderness Standards and Guidelines as proposed in the Draft Land and Resource Management Plan. A study permit would also be illegal according to the 1964 Wilderness Act. The only way this classification can be changed is by an Act of Congress. Although the writers of this document cannot predict what Congress may do in the future, further declassification of Wilderness for ski area development is highly unlikely.

4. Provide additional expansion within the White Pass Company Permit Area.

White Pass Company does propose some modifications and improved facilities within the existing permit boundary. These are displayed in Alternative 2. Other developments suggested were adding a chair lift to the north of existing Chair Lift 4 or on the northwest side of Pigtail Peak.

Additional lifts at the top of the existing area would have to be short, and therefore uneconomical, or they would start below the cliff line and be a mix of intermediate and advanced terrain which would create additional bottlenecks and safety problems for intermediate skiers. Development within the existing permit area, beyond what is proposed in Alternative 2, is not considered feasible due to these adverse impacts and terrain constraints.

5. Alternate locations for the Mid-Mountain Warming Hut

Problems with the proposed location for the mid-mountain hut (wet area, visual resource considerations, etc.) were brought up during the scoping period. Some respondents suggested the site be changed. First, the proposed location [see Alternative 7 Map, Fig. II-7,) was chosen to serve existing Chair Lifts 1, 2 and 4 and also possible future lifts 5, 6 or 7. Moving to other locations, e.g., closer to Pigtail Peak, would not meet these objectives. Second, the location presented is conceptual; the exact site determination and the protection measures that would be required in case of construction, are included in the management requirements and mitigation measures listed in this chapter and in Chapter IV.

6. Serve increased skier demand by expanding other existing Washington State ski areas, or developing new areas.

With this alternative no expansion would be made at White Pass. Other ski areas would accommodate increased skier needs. This alternative was not developed because it is similar to the "No Action" alternative in its effects, because White Pass Company has made an application to provide increased skiing opportunities and to improve their competitive position, and because Congress provided direction in the 1984 Washington State Wilderness Act Record to manage the proposed expansion area for its potential for ski development "in accordance with applicable laws, rules and regulations."

In 1970 the Forest Service made a survey of winter sports in Washington, with emphasis on potential skiing sites in the North Cascades region of the State. Sixteen sites were inventoried and 13 were studied. Only three sites were rated as "good" and of these three only Sandy Butte (site of Early Winters development) was "considered to have the necessary physical features for a site of major importance." In that study, development of new areas was third in priority for meeting increased skiing demand, behind (1) full development of existing, close-in sites and (2) development for other winter sports (i.e., ski touring, snowshoeing and ski mountaineering). The potential for winter sports sites was considered when Forest Plans were developed and no new sites were inventoried.

MANAGEMENT CONSIDERATIONS COMMON TO ALL ALTERNATIVES

There are certain objectives, assumptions and management directions that apply to all alternatives studied in detail. The assumptions are listed in Chapter I. Considerations and objectives are set by law, regulation, policy, or higher order management plans.

OBJECTIVES

Several key objectives that apply to alternatives in this EIS are:

FSM-2303, Recreation Policy

Encourage compatible off-season use of recreation areas.

Where feasible and economic, shift management of high-cost, highly developed, or non-traditional areas or facilities to other governmental and/or private entities, if the public will be well served.

FSM-2343.03. Policy

Issue prospectuses to solicit proposals for development of concession sites, when it is in the public interest or when competition exists or may be created. Give existing concessionaires an opportunity to expand their operations to meet increasing public needs before offering new sites for development.

Give priority to developments offering moderately priced accommodations and services as opposed to luxurious accommodations and services affordable only by the affluent.

Encourage year-round recreation use at privately developed concession sites.

FSM-2343.11. Policy

Encourage summertime use of ski area facilities where that use is compatible with or enhances natural resource-based recreation opportunities and does not require additional specialized facilities. Ensure that holders provide for development of facilities and protection of environmental values as an integral part of the development plan for the area.

Encourage privately operated Nordic ski touring centers.

Allow holders to charge for the use of permitted trails when they make capital investments or incur expense directly for trail maintenance, grooming, and patrolling. Do not allow holders to charge for use of national Forest land where they have made limited or no investments or provided only limited trail services.

Plan for development of new winter recreation sites or expansion of existing sites in such a way that the location of ski runs, trails, lifts, and other facilities avoids terrain inherently prone to frequent and extensive or severe avalanche activity.

MANAGEMENT GOALS

Applicable goals from proposed Land and Resource Management Plans include:

For Developed Recreation:

- Provide safe, well-maintained, developed facilities for the public's enjoyment. (Wenatchee National Forest-WNF)
- Provide safe, well-maintained facilities for developed recreation within a range of development levels. (Gifford Pinchot N.F.-GPNF)

For Dispersed Recreation:

- Provide a diverse range of dispersed recreational, interpretive and educational opportunities. (GPNF)
- Provide for a variety of dispersed motorized and non-motorized recreational opportunities and experiences. (WNF)

For Wilderness:

- Manage designated Wildernesses to preserve and protect the Wilderness character in accordance with the Wilderness Act of 1964, and the Washington State Wilderness Act of 1984. (WNF and GPNF)
- Provide a spectrum of opportunities for Wilderness recreation featuring a natural environment, solitude, physical and mental challenge, and inspiration consistent with preservation of Wilderness values. (WNF)
- Preserve naturalness and provide opportunities for solitude, challenge and inspiration. Recreational, scenic, scientific, educational and historical uses will be encouraged consistent with the need to maintain these attributes. Conflicts will be resolved in favor of preserving and protecting Wilderness values. (GPNF)

MANAGEMENT DIRECTION AND MITIGATION MEASURES

MANAGEMENT

In order to accomplish certain objectives or insure that specific results are achieved, standards and specifications have been developed in the form of management direction. In order to minimize or rectify various project-related impacts, certain mitigation measures have also been identified. While some theoretical distinctions between management and mitigation can be made, in practice they often overlap. And their enforcement occurs as a part of the District Ranger's administration of the Special Use Permit, during both construction and operation of the facilities.

Management direction for the White Pass area is currently guided by the Gifford Pinchot Land Management Plan-Part I (GP-LMP), October, 1979, and the Tieton Ranger District Interim Land Management Plan (TRD-LMP), May 1978. Key directions from these plans include:

- Provide a wide spectrum of recreation opportunities with emphasis on dispersed recreation. (GP-LMP).
- Existing recreational opportunities will not be decreased by any management activity. An effort will be made to enhance opportunities as part of any planned management activity. (TRD-LMP)
- Developed recreation sites will provide a setting for safe and pleasing recreation experience. (GP-LMP)
- Encourage the investment of private funds to provide more elaborate recreation facilities. Where private lands are not logically available, consider cooperative financing and long-term special use permits. (GP-LMP)
- Winter sports will increase in the entire area. A major increase will be cross-country skiing. The White Pass Company will complete a Master Plan and utilize available slopes for downhill skiing. (TRD-LMP)

Congress also prescribed management direction for the 800 acres deleted from the Goat Rocks Wilderness. The Congressional Record noted that this area has "significant potential for ski development," and it was Congressional intent that the area should be managed "to utilize this potential...."

Future management direction is found in the Land and Resource Management Plans for both Forests. Though these Plans are not yet approved, management directions for this area are shown in Figure II-A.

Management actions are guided by Standards and Guidelines for each management direction. They would help reduce possible adverse impacts of any action taken and are assumed to be in place when the consequences are assessed. Proposed Management Standards and Guidelines for the study area are included as Appendix E.

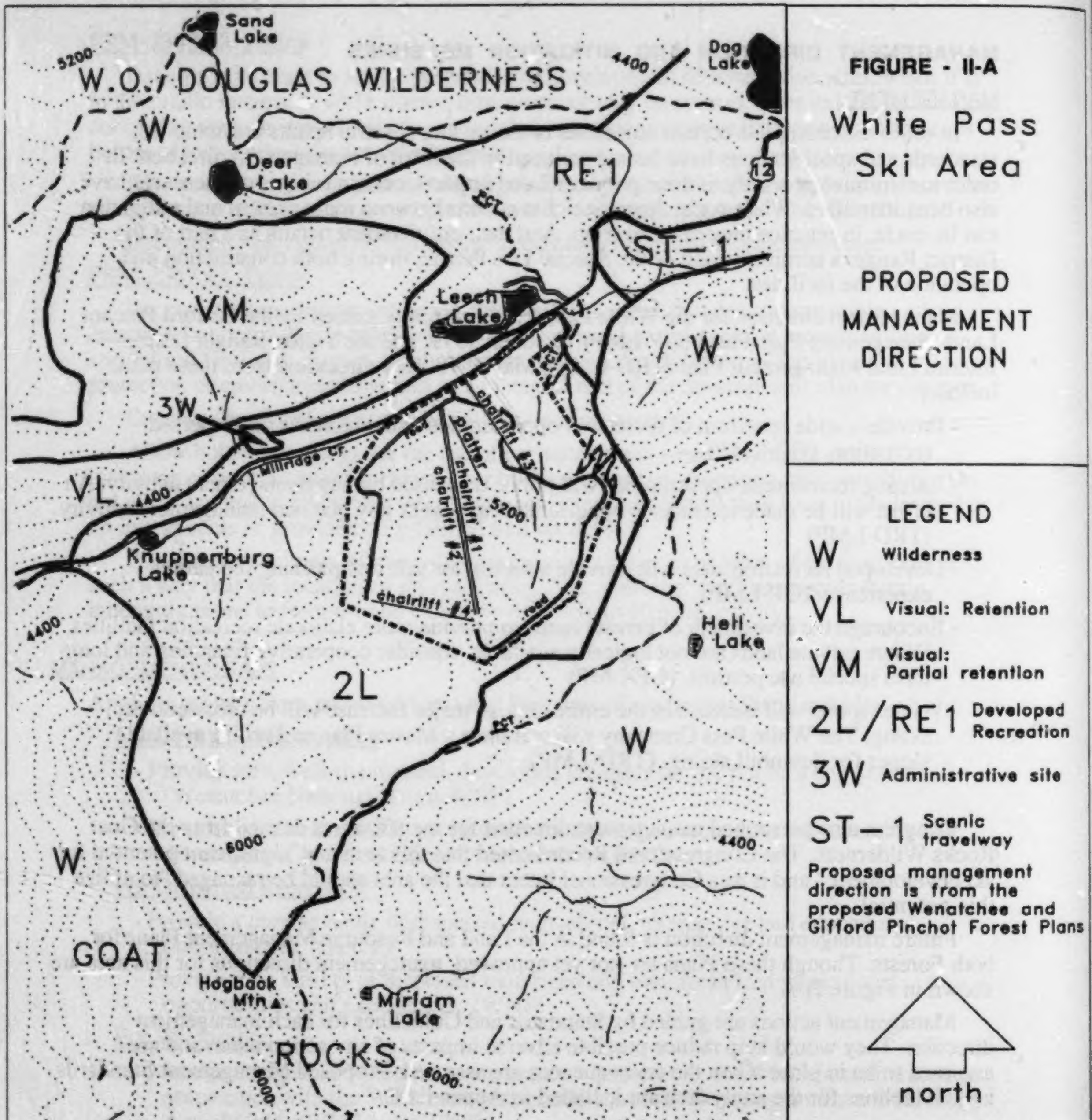

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
W
Deer Lake
RE1
12
PCT
ST-1
Leech Lake
VM
W
PCT
3W
road
chairlift #3
platter
chairlift #1
chairlift #2
Millridge Cr.
VL
4400
5200
Knuppenburg Lake
chairlift #4
road
Hell Lake
4400
2L
PCT
W
6000
4400
W
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
W Wilderness
VL Visual: Retention
VM Visual: Partial retention
2L/RE1 Developed Recreation
3W Administrative site
ST-1 Scenic travelway
north
0 miles 1
160 ft contour interval

FIGURE - II-A

White Pass Ski Area

PROPOSED MANAGEMENT DIRECTION

Proposed management direction is from the proposed Wenatchee and Gifford Pinchot Forest Plans

MITIGATION

The following are mitigation measures designed to reduce or minimize the adverse impacts listed in chapter IV, "Environmental Consequences."

SOIL AND WATER

To avoid the potential effects of erosion and sedimentation, all fresh cuts into soil and rock materials would be reseeded, revegetated, and/or covered with erosion control blankets. Road and catchline grades should be kept to an absolute minimum. The roads should be outsloped and the surfaces immediately treated. Dr, Glen Klock recommends (in "Mission Ridge—A Case History of Soil Disturbance and Revegetation of a Winter Sports Area Development," 1973) the following measures.

1. Stockpile and redistribute topsoil after the final grading of slopes.
2. Select plant species to be seeded carefully. Native species should be considered over introduced species.
3. The soil should be tested for fertility to determine the need for fertilizer. If total nitrogen is greater than or equal to 0.2%, nitrogen is not needed.
4. Due to the short summer season typical at ski areas, plantings should be made immediately following the soil disturbance. They should not be delayed until after precipitation and wind have caused crusting of the soil. Irrigation may be helpful.
5. Apply a shallow cover of soil over the newly planted seed and fertilizer.
6. Apply mulch to maintain desirable moisture content.
7. Limit the number of recurring soil disturbances. (Do the job right the first time.)
8. Monitor the planting for two growing seasons to determine their effectiveness. It takes two years before erosion control measures can be effective.
9. Periodically apply fertilizer to the plantings (every two to three years).

Protection from geologic hazards in the location and design of the catchline road would follow the recommendations of Brazil and Wooten in "A Geotechnical Assessment of the White Pass Proposed Expansion," November, 1985.

WILDLIFE AND FISH

To facilitate potential spotted owl movement and their use of appropriate habitats, run widths on Chair Lift 7 should maintain narrow necks not over 90-100 feet wide.

The system of summer trails needs site specific study of its locations to avoid key use areas such as mineral licks, wallows and escape cover. Trail locations should be chosen in consultation with the biologist.

The various agencies involved need to continue to coordinate winter range strategies and needs and to consider the possible impacts of accelerated development of private lands.

Future fishing regulations for Leech and Knuppenburg lakes need to consider the impacts from increased pressure.

VEGETATION AND TIMBER

Logging of timber to clear runs for Chair Lift 7 would use techniques to minimize ground disturbance (helicopter, skyline or over-snow yarding). Logging would occur during the appropriate time of the year to minimize erosion potential. (See also soil mitigation.)

Slash must be disposed of in a manner that considers ski grooming needs, visual quality objectives and soil protection measures. Measures may include total removal, lopping and scattering, and burning.

No salting would be allowed of the ski runs in the expansion areas of lifts 5, 6 and 7.

SOCIAL AND ECONOMIC

The Ski Area management, local governments and the Forest Service would work together to recognize and correct potential impacts on the communities involved.

VISUAL RESOURCES

Unobtrusive colors would be used for facilities. A vegetative screen would be maintained between U.S. 12 and the base facilities for Chair Lift 7. Where adequate screening does not exist, trees would be planted to establish it. The edges of the clearing for the lift line and runs for Chair 7 would be feathered as much as possible. Landscape architect skills would be used when planning these clearings.

WILDERNESS

The Forest Service would develop summer and winter baseline use and impact data for the Wilderness (Shoe Lake and Miriam basins) in order to monitor and evaluate use from the Ski Area.

WINTER RECREATION

Snow grooming would be restricted from blocks or areas in the Hogback Basin area (see Alternative maps, Figures II-1—II-7) to retain some of its unique setting for backcountry nordic skiers.

SUMMER RECREATION

If Alternative 10(S) is implemented, the following mitigation would be required.

1. The Hogback Basin Interpretive Trail would be located away from the Pacific Crest Trail to discourage additional use on the PCT and into the Goat Rocks Wilderness. The location should traverse through the natural diversity of the Basin and needs to include the spectacular views.
2. The interpretive program would emphasize Wilderness management objectives. These objectives would be communicated through naturalist contacts and programs, signing and brochures.
3. If monitoring of the Wilderness shows unacceptable impacts that can be attributed to the White Pass summer program, this program would then be modified to bring the Wilderness impacts within acceptable limits.

The naturalist/interpretive program would be implemented as a partnership between the Forest Service and the White Pass Company. One of its goals is to mitigate and offset Wilderness impacts.

TRANSPORTATION

To mitigate highway impacts, the WDOT recommends studying the following actions.

1. Left turn channelization.
2. Off-highway parking for the additional skiers.
3. A physical barrier between the travelling public and cars currently parked along the roadway shoulder. (A clear zone of 24—30 feet is needed.)
4. Common access points to and from parking areas.
5. Encourage ski bus use from Yakima and Packwood to reduce total traffic.

Before a final recommendation is made, on-the-ground reviews and study would be needed.

ON-SITE ROAD CONSTRUCTION

Construction equipment would be limited to the road prism or to specifically-approved parking sites. Only Forest Service approved motorized equipment would be allowed off the roads and on snow-free ground in the Hogback Basin area. There would be no roads up the lift line and the use of and the type of equipment would be restricted on a case-by-case basis.

There would be dust abatement measures, should conditions warrant and strictly-enforced smoke management procedures if slash is to be burned. Where visually acceptable and where satisfactory for operations, slash would be lopped and left on the ground to prevent erosion.

Refueling and crankcase oil changing would be only at approved environmentally non-sensitive areas. Prompt cleanup of all construction debris would be required.

The Forest Service would approve the location and design of all roads before construction. The goal is to minimize physical and visual impacts.

CHAIR LIFT CONSTRUCTION

Disturbed soils should be immediately reseed and revegetated (see soil mitigation section). Tower foundations should be hand dug to reduce the area disturbed with topsoil saved and replaced and excess material scattered.

Helicopter installation would be required for lift construction, with helicopters restricted to areas outside Wilderness. No flights would be allowed during high-use weekends and holidays.

As little vegetation as possible would be disturbed in Hogback Basin. As many trees as possible, while still meeting safety requirements, would be left under the lift lines. No additional lines would be added to the visual landscape. Conifer invasion of glades would be allowed with prior approval, but removal of trees to approved disposal sites would be required. No slope recontouring for ski runs would be permitted in the Basin.

To minimize the impacts on the visual resources as seen from Highway 12 and the William O. Douglas Wilderness, perspective plot techniques would be required for Chair Lift 7 and associated runs. To the degree possible, edges of cut lines would be feathered to soften the edge effect.

Logging should use methods that do not disturb ground or duff. On steep slopes the slash should be lopped and left to break the flow of water. Trees should be flush-cut with stumps left in the ground to "bind" the soil. Logging operator should meet all fire requirements, such as spark arrestors on equipment and shutdown periods.

Specific locations for upper towers of Chair Lifts 5 and 6 would need to be approved. Care must be taken to prevent dropping skiers too close to the area boundary in order to reduce impacts on the PCT and to provide efficient access to the ski runs. All towers and terminals would be painted a color blending with the area, i.e., dark olive as discussed in Chapter III.

Underground power lines and electrically-powered lifts would be required.

BUILDING CONSTRUCTION

The mid-mountain warming hut would be located to reduce visual and other physical and biological impacts. Forest Service approval of its location and design would be required.

All disturbed areas would be seeded and fertilized (see soil mitigation.), and all litter promptly cleaned up.

UTILITIES CONSTRUCTION

The condominium sewage disposal system deficiencies would be be corrected, with county approval.

Power lines to the bottom of Chair Lifts 5 and 6 and to the top of Chair 7 and to the warming hut would be buried within the road prisms of the existing and proposed catchline road. Lift control cables would be buried by hand in shallow trenches.

Where pipelines would be installed on steep slopes, collars would be required to break the flow of water. The trench lines would be backfilled, seeded and mulched. (See soil requirements.)

State of Washington Department of Ecology regulations relating to drilling of water wells must be adhered to. It would be required that the well drill hole casing be properly sealed at the surface and between aquifers.

TRAIL SYSTEM CONSTRUCTION

The PCT would be realigned to reduce exposure to the Ski Area and to correct original location and design problems. The Forest Service would locate and design the move, White Pass Company would do construction.

Trails would be carefully located to avoid steep grades and wet areas. Drainage control features such as culverts and water bars and tread hardening techniques would be used where needed.

The Hogback Trail System would be located away from the PCT to reduce conflicts and to encourage use outside Wilderness.

PUBLIC SAFETY

Appendix F is the "White Pass Ski Area Boundary management Guidelines" that would be implemented with approval of any of the expansion alternatives. These guidelines would initiated to reduce exposure of skiers to avalanche hazard adjacent to the ski area and to reduce the possibility of them inadvertently leaving the area and becoming lost, and yet to provide a reasonable opportunity for a backcountry experience.

The public would be informed about construction projects and impacts with White Pass Company signing and the Forest Service issuing press releases.

ALTERNATIVES IN DETAIL

Ten alternatives are analyzed in this EIS. Seven display the winter activities and development alternatives and three show different summer management strategies. These alternatives are designed to provide a variety of choices for further development at White Pass: for alpine skiing, for nordic skiing, and for summer recreation.

Alternatives are designed to balance base and support facilities with lift capacity. Mitigation measures unique to each alternative are included where appropriate. The alternatives are depicted in Figures II-1 through II-10. Detailed data for each alternative are listed in Tables II-1 through II-10.

ALTERNATIVE 1 - NO ACTION (NO CHANGE)

In addition to meeting NEPA's requirement to consider the effects of no action, this alternative also establishes a benchmark to which the other alternatives may be compared. It identifies and describes baseline conditions of the physical, biological, social and economic environments within the project's area of influence.

The term "No Action" means no change in present management. That is, the present mix of recreation activities would continue but no additional expansion or modification of facilities would be allowed.

ALTERNATIVE 2 - IMPROVEMENTS AND MODIFICATIONS OF EXISTING PERMIT AREA

This alternative assumes White Pass Company would continue to make modifications within the existing Permit Area to improve the quality of skiing.

The present mix of recreation activities would continue. No expansion of the alpine ski area would be permitted with this alternative. It addresses the issue of continuing to provide the unique, backcountry, nordic opportunities in Hogback Basin and the surrounding areas.

Construction elements involved are listed in the proposed scheduling sequence in Table II-2. These are the major projects, but additional improvements could be made.

ALTERNATIVE 3 - ADD CHAIR LIFT #7

This alternative allows some expansion of alpine skiing (600 SAOT) while retaining the Hogback Basin backcountry nordic skiing . The additional skiing would primarily be for the advanced skier. The permit area would be expanded by 668 acres, of which about 60 acres of timber would be cleared for ski runs and lift line. No mid-mountain warming hut would be added with this alternative. Facilities at the bottom of Chair Lift 7 would include an access road and turn-around (no public parking).

Construction elements involved are listed in the proposed scheduling sequence in Table II-3.

ALTERNATIVE 4 - ADD CHAIR LIFT #5 AND MID-MOUNTAIN WARMING HUT

This alternative would allow both alpine and backcountry nordic skiers to use the high elevation Hogback Basin. The eastern portion (about 500 acres) would be accessible from Chair Lift 5 and provide additional beginner and intermediate alpine skiing for 750 SAOT. The timber in this basin is in clumps and stringers [See Ecotype Map, Figure III-6] and little clearing will be needed. About 75 acres of groomed slopes will accommodate the alpine skiers who will, however, probably spread out through the entire 500 acres. Hogback Ridge and the eastern portion of the basin (about 300 acres) are not accessible from the lift and would be available for backcountry nordic skiing, though with many of the unique qualities (e.g., isolation, tranquility, self-reliance) reduced and the semi-private setting altered.

The mid-mountain hut would be constructed. It could be reached from all upper elevation lifts and would be available to nordic skiers.

Construction elements involved are listed in the proposed scheduling sequence in Table II-4.

ALTERNATIVE 5 - ADD CHAIR LIFTS #5 AND #6 AND MID-MOUNTAIN WARMING HUT

With this alternative the central Hogback Basin area would be fully utilized for alpine skiing. The two added chair lifts would allow access to the entire 800-acre basin, which would provide for an additional 1,400 SAOT of primarily beginner and intermediate skiers. The timber in this basin is in clumps and stringers with little clearing needed. About 140 acres will be groomed but the entire 800 acres will be utilized by both types of skiers. Hogback Basin would no longer totally meet the needs of the backcountry nordic skier with this alternative because the unique, semi-primitive setting would be changed, though about 235 acres would remain ungroomed and therefore available for backcountry skiing.

The mid-mountain hut would be constructed. It could be accessible from all upper elevation lifts (Chair Lifts 1, 2, 4, 5 and 6). Construction of the two chair lifts would be phased over time, with construction of Chair Lift 6 initiated when annual skier visits reach 135,000-140,000 per year. At that time other facilities (day lodge, warming hut, parking, etc.) will also be expanded.

Construction elements involved are listed in the proposed scheduling sequence in Table II-5.

ALTERNATIVE 6 - ADD CHAIR LIFTS #5 AND #7 AND MID-MOUNTAIN WARMING HUT

With this alternative nearly the full effective vertical rise would be available for alpine skiing while retaining a portion of Hogback Basin for backcountry nordic skiing. 1,100 acres would be added to the permit area, with 60 acres of heavy timber to be cleared for ski runs and lift line for Chair Lift 7 and 75 acres of open stands groomed for Chair Lift 5. Expansion will provide additional skiing both for the beginner/intermediate and advanced alpine skier. Hogback Ridge and the eastern portion of the basin (about 300 acres) are not served by the lifts and would be available for backcountry nordic skiing, but with many of the unique qualities (isolation, tranquility, self-reliance, etc.) reduced and the semi private setting altered.

The mid-mountain hut would be constructed. This facility could be reached from all upper elevation lifts (chairs 1, 2, 4, 5 and 7). Construction of the two chair lifts would be phased over time, with construction of Chair Lift 7 initiated when the annual skier visits reach 135,000-140,000 per year. At that time the other facilities (day lodge, warming hut, parking, etc.) would also be expanded.

Construction elements involved are listed in the proposed scheduling sequence in Table II-6.

ALTERNATIVE 7 - ADD CHAIR LIFTS #5, #6 AND #7 AND MID-MOUNTAIN WARMING HUT (FULL DEVELOPMENT, PERMITTEE'S PROPOSED ACTION)

This alternative provides for full development of the expansion area (Hogback Basin and Knuppenburg Lake areas) for alpine skiing. 1,100 acres would be added to the permit area, with 60 acres of heavy timber to be cleared for ski runs and lift line for Chair Lift 7 and 140 acres of open stands groomed for Chair Lifts 5 and 6. Expansion will provide additional skiing both for the beginner/intermediate and advanced alpine skier. Hogback Basin would no longer meet the total needs of the backcountry nordic skier with this alternative because the unique, semi-private setting would be changed though about 235 acres would remain ungroomed and therefore available for backcountry skiing.

The mid-mountain hut would be constructed. This facility could be reached from all upper elevation lifts (Chairs 1, 2, 4, 5, 6 and 7). Construction of the chair lifts would be phased over time, with Chair Lift 5 being the first. The next lift (6) would be initiated when annual skier visits reach 135,000-140,000 per year. The last Chair Lift (7) would be constructed when annual skier visits reach 170,000—175,000 per year. At each phase the other facilities (day lodge, warming hut, parking, etc.) would also be expanded.

Construction elements involved are listed in the proposed scheduling sequence in Table II-7.

ALTERNATIVE 8(S) - SUMMER MANAGEMENT WITH NO CHANGE (NO ACTION)

This alternative would continue present management direction during the summer season. It is the summertime "No Action" alternative and is the benchmark against which the other summer alternatives can be measured. It assumes continued use of the chair lifts to Pigtail Peak and of White Pass parking, trailheads and campgrounds. Current use trends would continue in both the Wildernesses and in areas outside.

ALTERNATIVE 9(S) - SUMMER MANAGEMENT WITH RECREATION USE CONSTRAINED TO ASSIST IN MEETING WILDERNESS OBJECTIVES

This alternative would limit summer use so it conforms to wilderness management objectives, especially in Shoe Lake Basin. Measures would be taken to assure Wilderness objectives would not be exceeded, possibly eliminating summer chair lift rides, no naturalist's tours in the upper areas and, if needed, registration or permits for entry into Miriam and Shoe Lake Basin areas.

ALTERNATIVE 10(S) - SUMMER MANAGEMENT TO ENHANCE RECREATION OPPORTUNITIES OUTSIDE WILDERNESS FROM WHITE PASS WHILE PROTECTING WILDERNESS VALUES

This alternative would allow programs to increase and enhance summer recreation in the White Pass area. Programs would include chair lift rides to Pigtail Peak, loop trails in Hogback Basin, and a naturalist/interpretive program to provide additional information for visitors. Emphasis would be on providing day-use opportunities outside Wilderness. Wilderness management objectives would be emphasized but might be more difficult to achieve, though this alternative could have a positive effect of diverting people from the Wilderness.

TABLE II-1, CHARACTERISTICS OF ALTERNATIVE 1

Total Area: ....712 acres
Slope Capacity: .5,125 SAOT

Lift summary:
4 chair lifts
1 platter lift
1 rope tow
Vertical rise upper elevation .....6,000'
- lower elevation .....4,500'
= ....1,500'

Lift Capacity: 3,700 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	750	30
intermediate	185	1125	45
experienced	60	625	25
TOTALS	315	2,500	100

Projected Rec. Use (year 2000)

Alpine	100,000
Nordic	
Groomed trail	10,000
Ungroomed	3,500
Backcountry	2,000
TOTAL	115,500

Developed Area (ski runs)

Cleared timber	315	acres
Open Stands	0	
TOTAL	315	acres

Nordic Skiing

Groomed trails	9.3	mi. (15 km.)
Non-Groomed trails	25	mi.
Backcountry		
Telemark	1,000	acres
Day Tour	2,000	acres

Base/Support Facilities:
Day Lodge: ....20,000 sq. ft.
...............................575 seating
Mid-Mountain Hut:...........None

Parking:
acreage ....9.0 acres
vehicle capacity.........1,250

Water System
Base = ...400 gpm spring
.........................50,000 gal. tank
Upper = ...None

Waste Water Disposal
Day Lodge = septic tank/drainfield
2,540 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Upper = None

Service/access roads: 2.7 miles

Construction Elements Scheduling Sequence
Rebuild condominium septic system
Complete revegetation on Lift 4

TOTAL COST $100,000

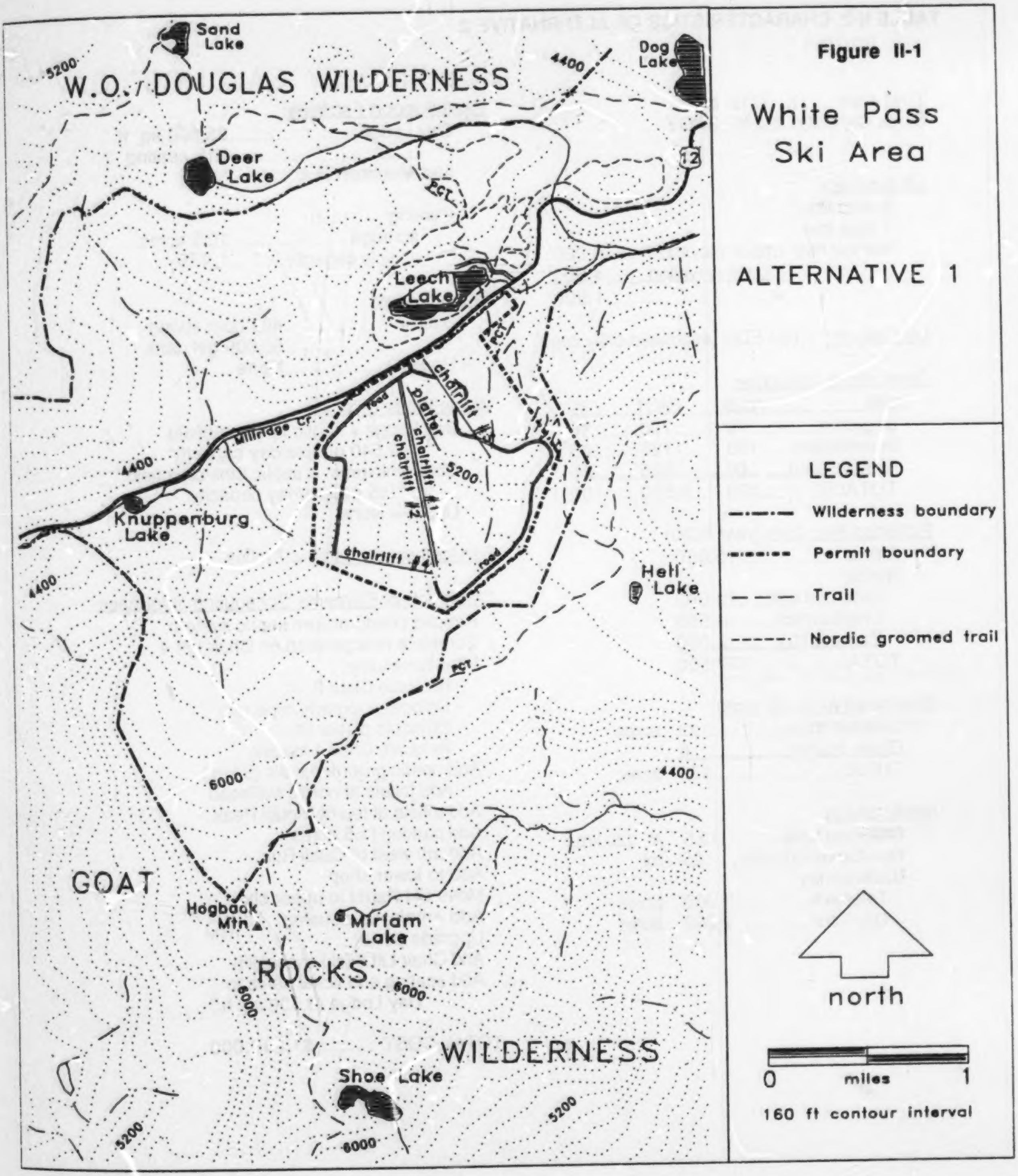


Figure II-1

White Pass Ski Area

ALTERNATIVE 1

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
Deer Lake
12
PCT
Leech Lake
PCT
chairlift #3
platter
road
Millridge Cr.
chairlift #1
chairlift #2
5200
4400
Knuppenburg Lake
chairlift #4
road
4400
Hell Lake
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
north
0
miles
1
160 ft contour interval

TABLE II-2, CHARACTERISTICS OF ALTERNATIVE 2

Total Area: ....712 acres
Slope Capacity: .5,245 SAOT

Lift summary:
- 5 chair lifts
- 1 rope tow
- Vertical rise upper elevation .....6,000'
  - lower elevation .....4,500'
  = ...1,500'

Lift Capacity: 4,025 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	750	30
intermediate	193	1125	45
experienced	60	625	25
TOTALS	323	2,500	100

Projected Rec. Use (year 2000)

Alpine...............110,000
Nordic
  Groomed trail.....12,000
  Ungroomed.........3,500
  Backcountry........2,000
TOTAL...............127,500

Developed Area (ski runs)

Cleared timber...........323 acres
Open Stands...............0
TOTAL......................323 acres

Nordic Skiing

Groomed trails ....12.5 mi. (20 km.)
Non-Groomed trails......25 mi.
Backcountry
  Telemark.............1,000 acres
  Day Tour ....2,000 acres

Base/Support Facilities:

Day Lodge: ....23,500 sq. ft.
..................................715 seating
Mid-Mountain Hut:...........None

Parking:
  acreage ....10.5 acres
  vehicle capacity.........1,475

Water System

Base = ...400 gpm spring
...................50,000 gal. tank
Upper = ...None

Waste Water Disposal

Day Lodge = septic tank/drainfield
  2,540 people/day capacity
Condominiums: = septic tank/drainfield
  165 people/day capacity
Upper = None

Service/access roads: 2.7 miles

Construction Elements Scheduling Sequence

Rebuild condominium septic system
Complete revegetation on Chair Lift 4
Simultaneously:
- Relocate Chair 3
- Relocate/upgrade rope tow
- Eliminate platter lift
- Relocate Chair 1 loading

Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead

Add toilets at top of Pigtail Peak
Add parking (1.5 acres)
Add run west of Quail Run
Add to lower shop
Move Ski Patrol to upper shop
Add employee housing
Upgrade power
Add Chair Lift 8 (ski school lift)
Add seating and ticket sales to
  Day Lodge (3,500 sq. ft.)

TOTAL COST $1,210,000

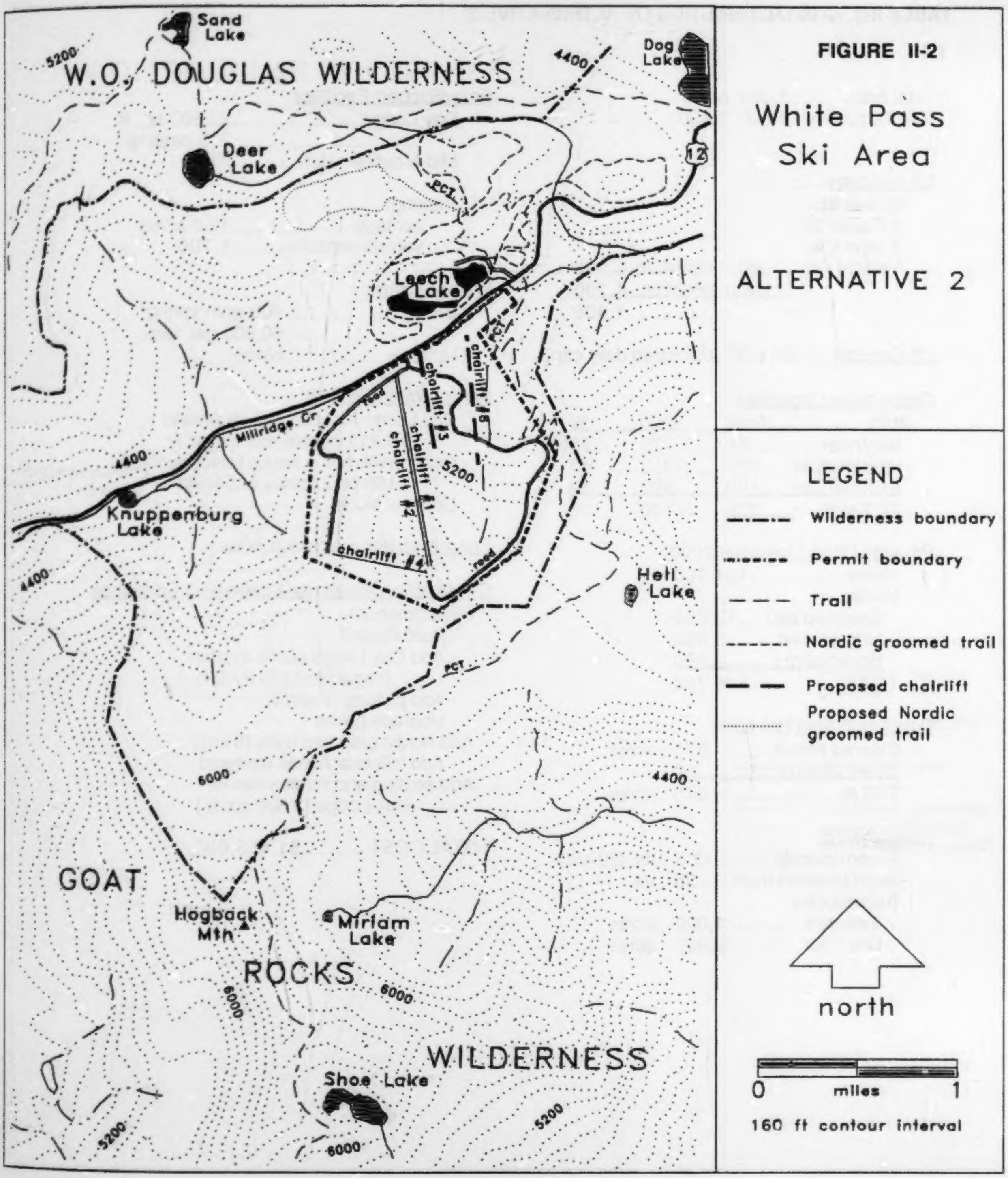


FIGURE II-2

White Pass Ski Area

ALTERNATIVE 2

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
12
Deer Lake
PCT
Leech Lake
PCT
chairlift #5
chairlift #3
chairlift #1
chairlift #2
5200
road
Millridge Cr
4400
Knuppenburg Lake
chairlift #4
road
4400
Hell Lake
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed chairlift
Proposed Nordic groomed trail
north
0
miles
1
160 ft contour interval

TABLE II-3, CHARACTERISTICS OF ALTERNATIVE 3

Total Area: ....1,380 acres
Slope Capacity: .5,825 SAOT

Lift summary:
- 5 chair lifts
- 1 Platter lift
- 1 rope tow

Vertical rise upper elevation. 6,000'
- lower elevation..4,100'
= ....1,900'

Lift Capacity: 5,184 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	70	775	25
intermediate	205	1333	43
experienced	100	992	32
TOTALS	375	3,100	100

Projected Rec. Use (year 2000)
Alpine................131,200
Nordic
Groomed trail.....12,000
Ungroomed.........3,500
Backcountry........2,000
TOTAL...............148,700

Developed Area (ski runs)
Cleared timber...........375 acres
Open Stands................0
TOTAL......................375 acres

Nordic Skiing
Groomed trails ....12.5 mi. (20 km.)
Non-Groomed trails......25 mi.
Backcountry
Telemark.............1,000 acres
Day Tour.............2,000 acres

Base/Support Facilities:
Day Lodge: ....23,500 sq. ft.
...............................715 seating
Mid-Mountain Hut:...........None

Parking:
acreage ....12.0 acres
vehicle capacity.........1,700

Water System
Base = ...400 gpm spring
..................50,000 gal. tank
Upper = ...None

Waste Water Disposal
Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Upper = None

Service/access roads: 3.0 miles

Construction Elements Scheduling Sequence
Simultaneously:
- Build Chair 7
- Add Day Lodge septic system (capacity: 1270 PAOT)
- Add parking (3 acres)
- Upgrade power

Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead

Add seating and ticket sales to Day Lodge (3,500 sq. ft.)

TOTAL COST $1,455,000

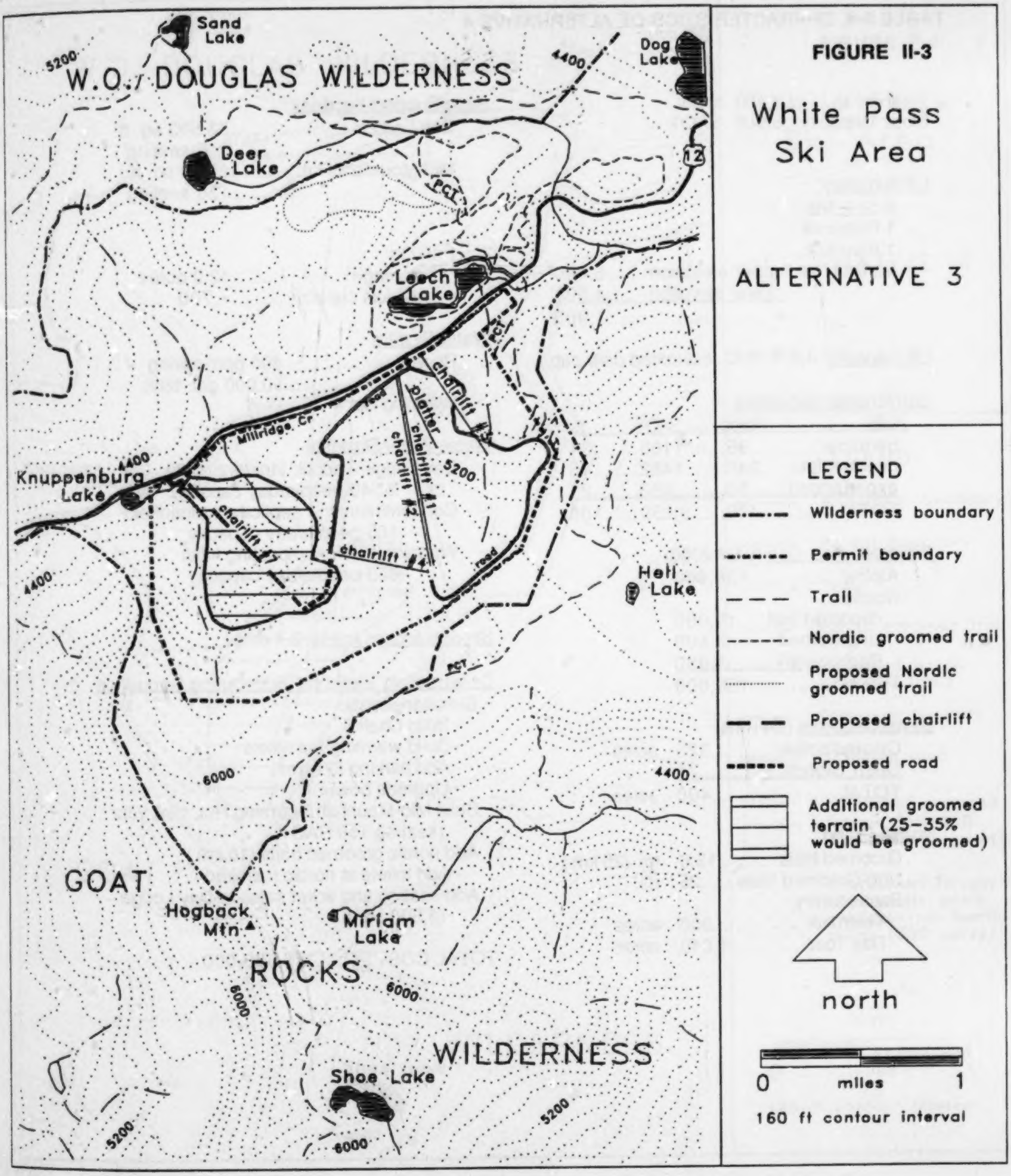


FIGURE II-3

White Pass Ski Area

ALTERNATIVE 3

Sand Lake
W.O. DOUGLAS WILDERNESS
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift
platter
chairlift #2
chairlift #1
chairlift #4
chairlift
Millridge Cr
road
Knuppenburg Lake
Hell Lake
GOAT
Hogback Mtn
Miriam Lake
ROCKS
WILDERNESS
Shoe Lake
4400
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trail
Proposed chairlift
Proposed road
Additional groomed terrain (25–35% would be groomed)
north
0 miles 1
160 ft contour interval

TABLE II-4, CHARACTERISTICS OF ALTERNATIVE 4

Total Area: ....1,460 acres
Slope Capacity: .6,500 SAOT

Lift summary:
- 5 chair lifts
- 1 Platter lift
- 1 rope tow
- Vertical rise upper elevation .....6,400'
  - lower elevation .....4,500'
  = ...1,900'

Lift Capacity: 4,675 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	95	1105	34
intermediate	245	1462	45
experienced	60	683	21
TOTALS	400	3,250	100

Projected Rec. Use (year 2000)
- Alpine 136,000
- Nordic
  - Groomed trail.....15,000
  - Ungroomed.........3,500
  - Backcountry........1,000
- TOTAL...............155,000

Developed Area (ski runs)
- Cleared timber...........325 acres
- Open Stands..............75
- TOTAL.......................400 acres

Nordic Skiing
- Groomed trails ....15.6 mi. (25 km.)
- Non-Groomed trails......25 mi.
- Backcountry
  - Telemark................900 acres
  - Day Tour ....1,640 acres

Base/Support Facilities:
- Day Lodge: ....23,500 sq. ft.
  ....715 seating
- Mid-Mountain Hut:...........2,700 sq. ft.
  ....150 seating

Parking:
- acreage ....12.0 acres
- vehicle capacity.........1,700

Water System
- Base = ...400 gpm spring
  ....50,000 gal. tank
- Warming Hut = ...Well

Waste Water Disposal
- Day Lodge = septic tank/drainfield
  2,540 people/day capacity
- Condominiums: = septic tank/drainfield
  165 people/day capacity
- Warming Hut = composting toilet
  800 people/day capacity

Service/access roads: 3.4 miles

Construction Elements Scheduling Sequence
- Simultaneously:
  - Build Chair 5
  - Build warming hut toilets
  - Add parking (3 acres)
  - Upgrade power
- Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)
- Add nordic groomed trails (10 km.)
  - Add toilets at nordic trailhead
- Add seating and ticket sales to Day Lodge (3,500 sq. ft.)

TOTAL COST $1,585,000

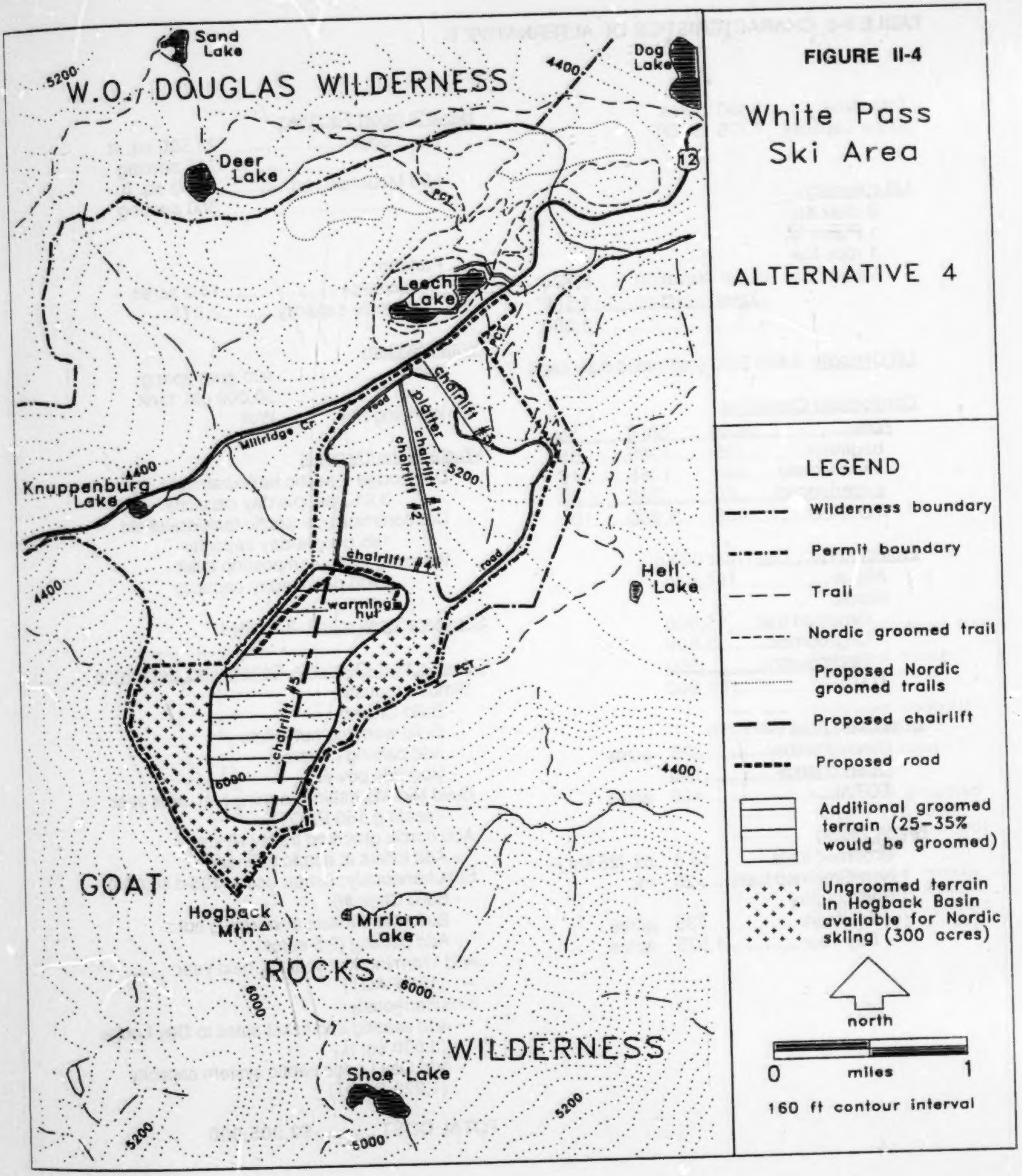


FIGURE II-4

White Pass Ski Area

ALTERNATIVE 4

Sand Lake
Dog Lake
5200
4400
W.O. DOUGLAS WILDERNESS
Deer Lake
12
PCT
Leech Lake
chairlift #3
platter
Millridge Cr.
road
chairlift #1
chairlift #2
5200
Knuppenburg Lake
4400
chairlift #4
road
Hell Lake
warming hut
PCT
chairlift #5
6000
4400
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
5000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25–35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (300 acres)
north
0
miles
1
160 ft contour interval

TABLE II-5, CHARACTERISTICS OF ALTERNATIVE 5

Total Area: ....1,460 acres
Slope Capacity: .7,775 SAOT

Lift summary:
- 6 chair lifts
- 1 Platter lift
- 1 rope tow

Vertical rise upper elevation .....6,700'
- lower elevation .....4,500'
= ....2,200'

Lift Capacity: 5,875 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	125	1365	35
intermediate	280	1755	45
experienced	60	780	20
TOTALS	465	3,900	100

Projected Rec. Use (year 2000)
- Alpine................169,600
- Nordic
  - Groomed trail.....15,000
  - Ungroomed.........3,500
  - Backcountry..........800
- TOTAL..............188,900

Developed Area (ski runs)
- Cleared timber...........325 acres
- Open Stands............140
- TOTAL......................465 acres

Nordic Skiing
- Groomed trails ....15.6 mi. (25 km.)
- Non-Groomed trails......25 mi.
- Backcountry
  - Telemark................735 acres
  - Day Tour ....1,575 acres

Base/Support Facilities:
- Day Lodge: ....23,500 sq. ft.
  - ....715 seating
- Mid-Mountain Hut:...........4,500 sq. ft.
  - ....300 seating

Parking:
- acreage ....14.5 acres
- vehicle capacity.........2,075

Water System
- Base = ...400 gpm spring
  - ....50,000 gal. tank
- Warming Hut = ...Well

Waste Water Disposal
- Day Lodge = septic tank/drainfield
  - 3,810 people/day capacity
- Condominiums: = septic tank/drainfield
  - 165 people/day capacity
- Warming Hut = composting toilet
  - 1200 people/day capacity

Service/access roads: 3.7 miles

Construction Elements Scheduling Sequence
- Simultaneously:
  - Build Chair 5
  - Build warming hut toilets
  - Add parking (3 acres)
  - Upgrade power
- Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)
- Add nordic groomed trails (10 km.)
  - Add toilets at nordic trailhead
- Simultaneously: (when use = 135-140,000)
  - Build Chair #6
  - Build more toilets at warming hut
  - Add parking (2.5 acres)
- Add Warming Hut seating, next year (150 PAOT)
- Simultaneously:
  - Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
  - Add Day Lodge septic system capacity (1,270 PAOT)

TOTAL COST $2,905,000

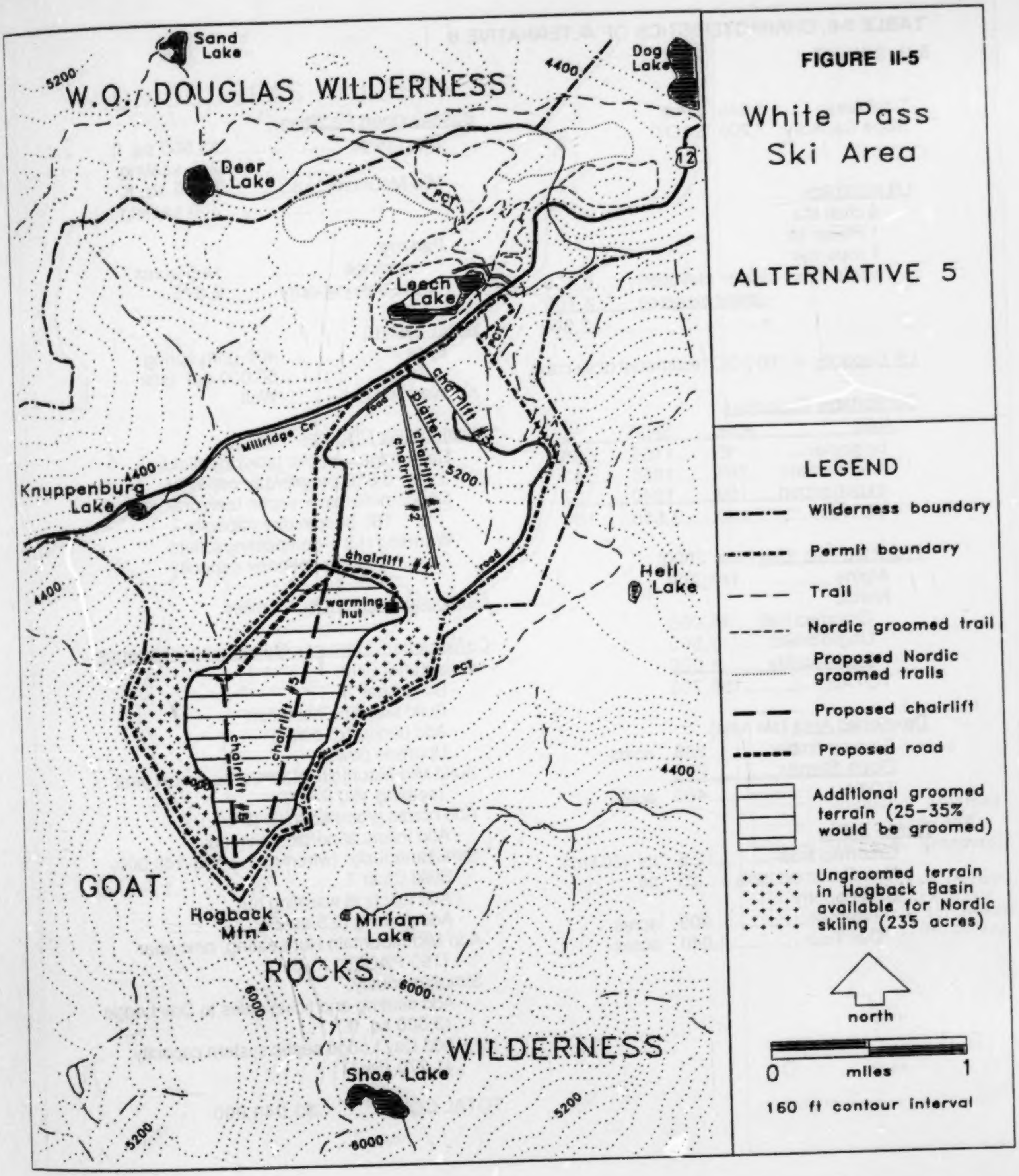


FIGURE II-5

White Pass Ski Area

ALTERNATIVE 5

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
12
Deer Lake
PCT
Leech Lake
PCT
chairlift #3
platter
chairlift #1
chairlift #2
road
5200
Millridge Cr
4400
Knuppenburg Lake
4400
chairlift #4
road
warming hut
Hell Lake
PCT
chairlift #5
chairlift #6
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (235 acres)
north
0
miles
1
160 ft contour interval

TABLE II-6, CHARACTERISTICS OF ALTERNATIVE 6

Total Area:	1,820 acres
Slope Capacity:	7,200 SAOT

Lift summary:

- 6 chair lifts
- 1 Platter lift
- 1 rope tow

Vertical rise	upper elevation	6,400'
	- lower elevation	4,100'
	=	2,300

Lift Capacity: 6,160 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	95	1155	30
intermediate	265	1655	43
experienced	10[illegible]	1040	27
TOTALS	460	3,850	100

Projected Rec. Use (year 2000)

Alpine	167,200
Nordic	
Groomed trail	15,000
Ungroomed	3,500
Backcountry	1,000
TOTAL	186,700

Developed Area (ski runs)

Cleared timber	385	acres
Open Stands	75	
TOTAL	460	acres

Nordic Skiing

Groomed trails	12.5	mi. (20 km.)
Non-Groomed trails	25	mi.
Backcountry		
Telemark	900	acres
Day Tour	1,640	acres

Base/Support Facilities:

Day Lodge:	23,500 sq. ft.
	715 seating
Mid-Mountain Hut:	4,500 sq. ft.
	300 seating

Parking:

acreage	14.5 acres
vehicle capacity	2,075

Water System

Base =	400 gpm spring
	50,000 gal. tank
Warming Hut =	Well

Waste Water Disposal

Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Warming Hut = composting toilet
1,200 people/day capacity

Service/access roads: 3.7 miles

Construction Elements Scheduling Sequence

Simultaneously:
- Build Chair 5
- Build warming hut toilets
- Add parking (3 acres)
- Upgrade power

Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)
Add nordic groomed trails (5 km.)
- Add toilets at nordic trailhead

Simultaneously: (when use = 135-140,000)
- Build Chair 7
- Add toilets at warming hut
- Add parking (2.5 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)
Simultaneously:
- Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
- Add Day Lodge septic system capacity (1,270 PAOT)

TOTAL COST $3,040,000

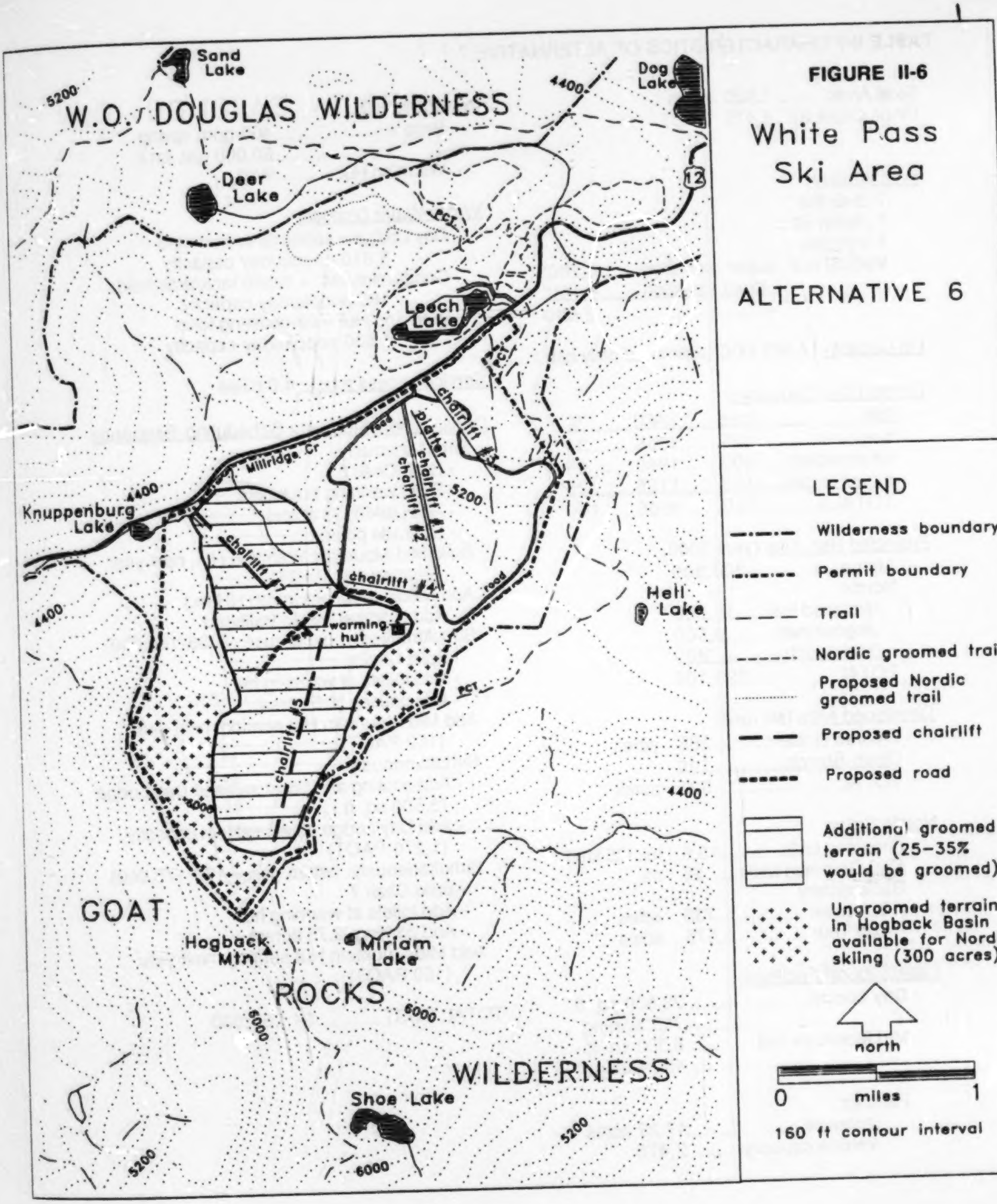


FIGURE II-6

White Pass Ski Area

ALTERNATIVE 6

Sand Lake
Dog Lake
5200
4400
W.O. DOUGLAS WILDERNESS
Deer Lake
12
PCT
Leech Lake
PCT
chairlift #3
platter
road
Millridge Cr
chairlift #1
chairlift #2
5200
4400
Knuppenburg Lake
chairlift #7
chairlift #4
road
Hell Lake
warming hut
4400
PCT
chairlift #5
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trail
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (300 acres)
north
0 miles 1
160 ft contour interval

TABLE II-7 CHARACTERISTICS OF ALTERNATIVE 7

Total Area:	1,820	acres
Slope Capacity:	8,475	SAOT

Lift summary:

7 chair lifts
1 Platter lift
1 rope tow

Vertical rise	upper elevation	6,700'
	- lower elevation	4,100'
	=	2,600

Lift Capacity: 7,360 EDC (estimated daily cap.)

Comfortable Capacities

Ability	Acres	SAOT	%
beginner	125	1395	31
intermediate	300	1980	44
experienced	100	1125	25
TOTALS	525	4500	100

Projected Rec. Use (year 2000)

Alpine	200,800
Nordic	
Groomed trail	15,000
Ungroomed	3,500
Backcountry	800
TOTAL	220,100

Developed Area (ski runs)

Cleared timber	385	acres
Open Stands	140	
TOTAL	525	acres

Nordic Skiing

Groomed trails	15.6	mi. (25 km.)
Non-Groomed trails	25	mi.
Backcountry		
Telemark	735	acres
Day Tour	1,575	acres

Base/Support Facilities:

Day Lodge:	23,500 sq. ft.
	715 seating
Mid-Mountain Hut:	6,300 sq. ft.
	450 seating

Parking:

acreage	17.25 acres
vehicle capacity	2,475

Water System

Base =	400 gpm spring
	50,000 gal. tank
Warming Hut =	Well

Waste Water Disposal

Day Lodge = septic tank/drainfield
3,810 people/day capacity
Condominiums: = septic tank/drainfield
165 people/day capacity
Warming Hut = composting toilet
1,600 people/day capacity

Service/access roads: 4.0 miles

Construction Elements Scheduling Sequence

Simultaneously:
- Build Chair 5
- Build warming hut toilets
- Add parking (3 acres)
- Upgrade power

Build Mid-Mountain Warming Hut, next year (seating 150 PAOT)

Add nordic groomed trails (10 km.)
- Add toilets at nordic trailhead

Simultaneously: (when use = 135-140,000)
- Build Chair 6
- Add toilets at warming hut
- Add parking (2.5 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)

Simultaneously:
- Add seating and ticket sales to Day Lodge (3,500 sq. ft.)
- Add Day Lodge septic system capacity (1,270 PAOT)

Simultaneously: (when use = 170-175,000)
- Build Chair 7
- Add toilets at warming hut
- Add parking (2.75 acres)

Add Mid-Mountain Hut seating, next year (150 PAOT)

TOTAL COST $4,255,000

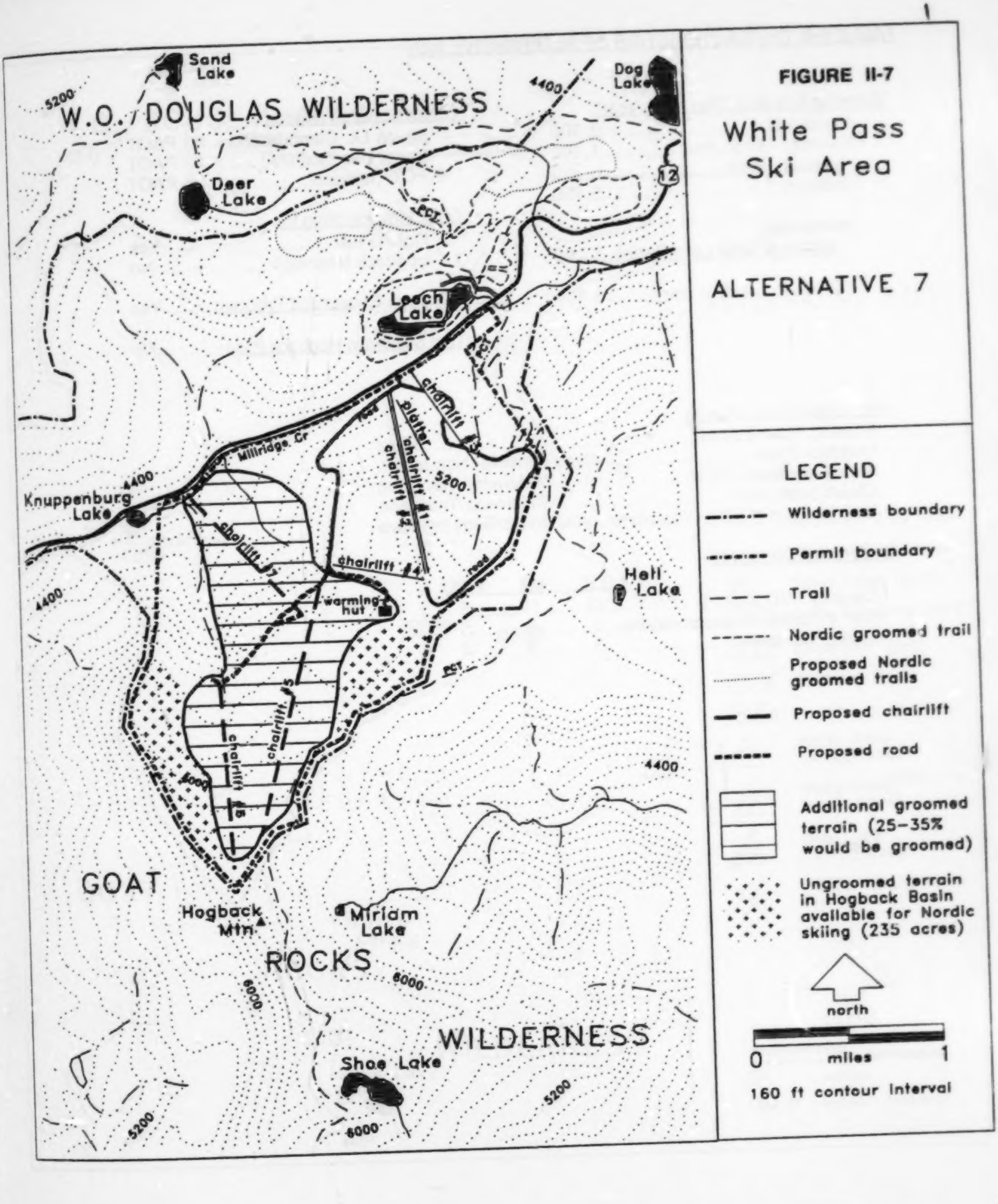


FIGURE II-7

White Pass Ski Area

ALTERNATIVE 7

Sand Lake
Dog Lake
5200
4400
W.O. DOUGLAS WILDERNESS
Deer Lake
12
PCT
Leech Lake
chairlift #3
platter
chairlift #1
chairlift #2
5200
Millridge Cr
4400
Knuppenburg Lake
chairlift #7
chairlift #4
road
Hell Lake
4400
warming hut
PCT
chairlift #5
chairlift #6
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
Proposed Nordic groomed trails
Proposed chairlift
Proposed road
Additional groomed terrain (25-35% would be groomed)
Ungroomed terrain in Hogback Basin available for Nordic skiing (235 acres)
north
0
miles
1
160 ft contour interval

TABLE II-8. CHARACTERISTICS OF ALTERNATIVE 8(S)

Summer Activities (Rec. visits/year)

Leech Lake	3,300
Existing Permit Area	1,400
Hogback Basin	350
Subtotal	5,050
Wilderness	
Miriam & Shoe Lake Basins	1,250
TOTAL Recreation use	6,300

Forest Service Facilities

Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:

Pigtail Peak	Yes
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	No

Rec. Opportunity Setting

Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives

	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

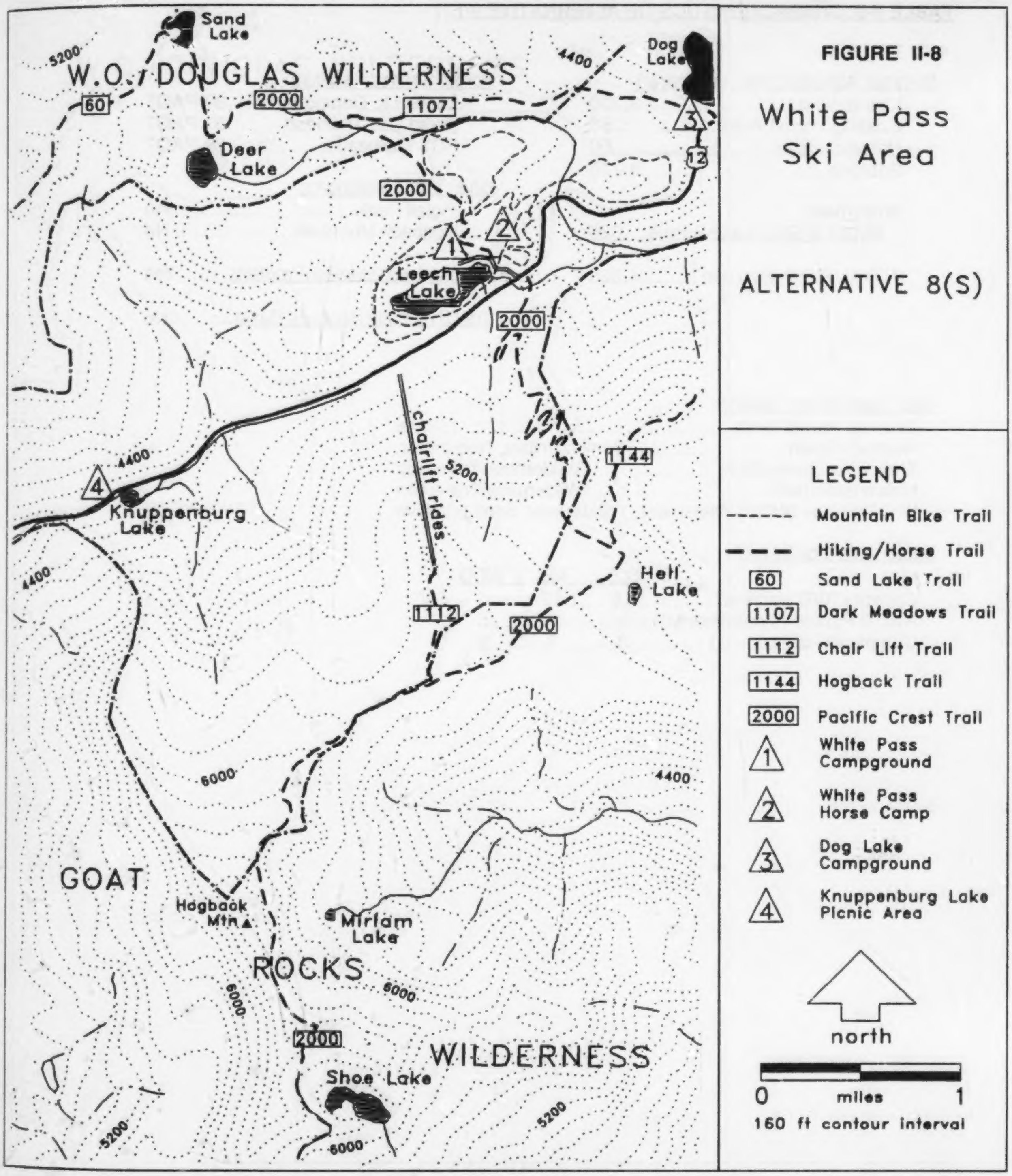


FIGURE II-8

White Pass Ski Area

ALTERNATIVE 8(S)

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
60
2000
1107
4400
Dog Lake
3
12
Deer Lake
2000
1
2
Leech Lake
2000
chairlift rides
5200
1144
4400
4
Knuppenburg Lake
4400
Hell Lake
1112
2000
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
2000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval

TABLE II-9. CHARACTERISTICS OF ALTERNATIVE 9(S)

Summer Activities (Rec. visits/year)

Leech Lake	3,300
Existing Permit Area	350
Hogback Basin	50
Subtotal	3,700
Wilderness Miriam & Shoe Lake Basins	625
TOTAL Recreation use	4,325

Forest Service Facilities

Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:

Pigtail Peak	No
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	No

Rec. Opportunity Setting

Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives

	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

FIGURE II-9

White Pass Ski Area

ALTERNATIVE 9(S)

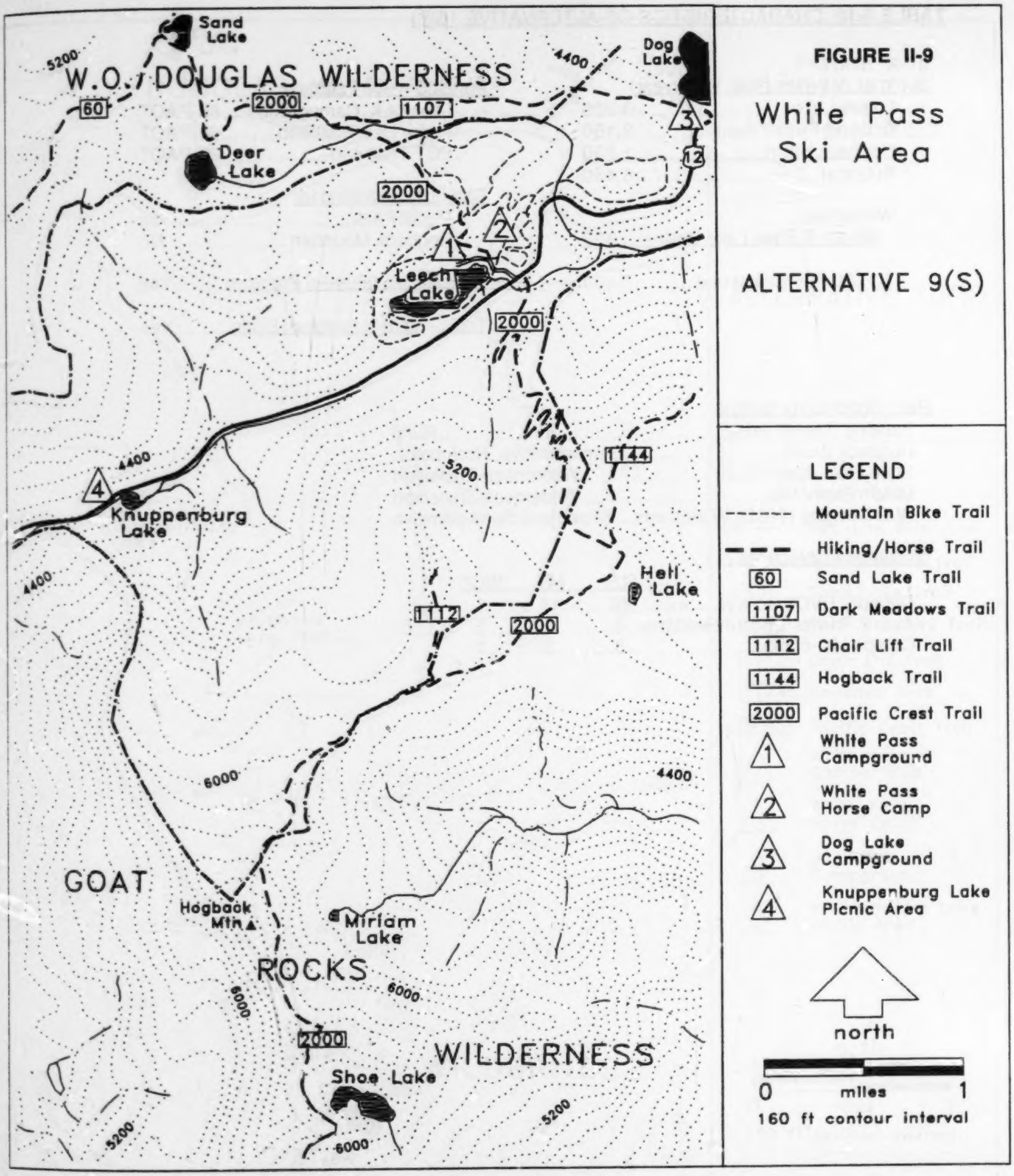

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
60
2000
1107
4400
Dog Lake
3
12
Deer Lake
2000
1
2
Leech Lake
2000
5200
1144
4400
4
Knuppenburg Lake
4400
Hell Lake
1112
2000
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
2000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval

TABLE II-10. CHARACTERISTICS OF ALTERNATIVE 10(S)

Summer Activities (Rec. visits/year)

Leech Lake	3,300
Existing Permit Area	2,100
Hogback Basin	1,050
Subtotal	6,450
Wilderness	
Miriam & Shoe Lake Basins	950
TOTAL Recreation use	7,400

Forest Service Facilities

Leech Lk. Campground	80 PAOT
Horse Use Trailhead	63 PAOT
PCT Trailhead	28 PAOT

Chair Lift Operating to:

Pigtail Peak	Yes
Hogback Mountain	No

Interpretive/Naturalist Program	Yes
Trail System in Hogback Basin	Yes

Rec. Opportunity Setting

Existing Permit Area	Rural
Hogback Basin	Semi-primitive, Non-motor.
Shoe Lake Basin (SLB)	Wilderness-Transition
Miriam Basin (MB)	Wilderness-Transition
W.O.Douglas (WOD) Wilderness	Wilderness-Semi-primitive

Wilderness Objectives

	SLB	MB	WOD
Capacity RVD's/acre/yr	15	15	5
Ave. # Parties Encountered/day	8	8	5
Camps vis.-camp	3	3	2

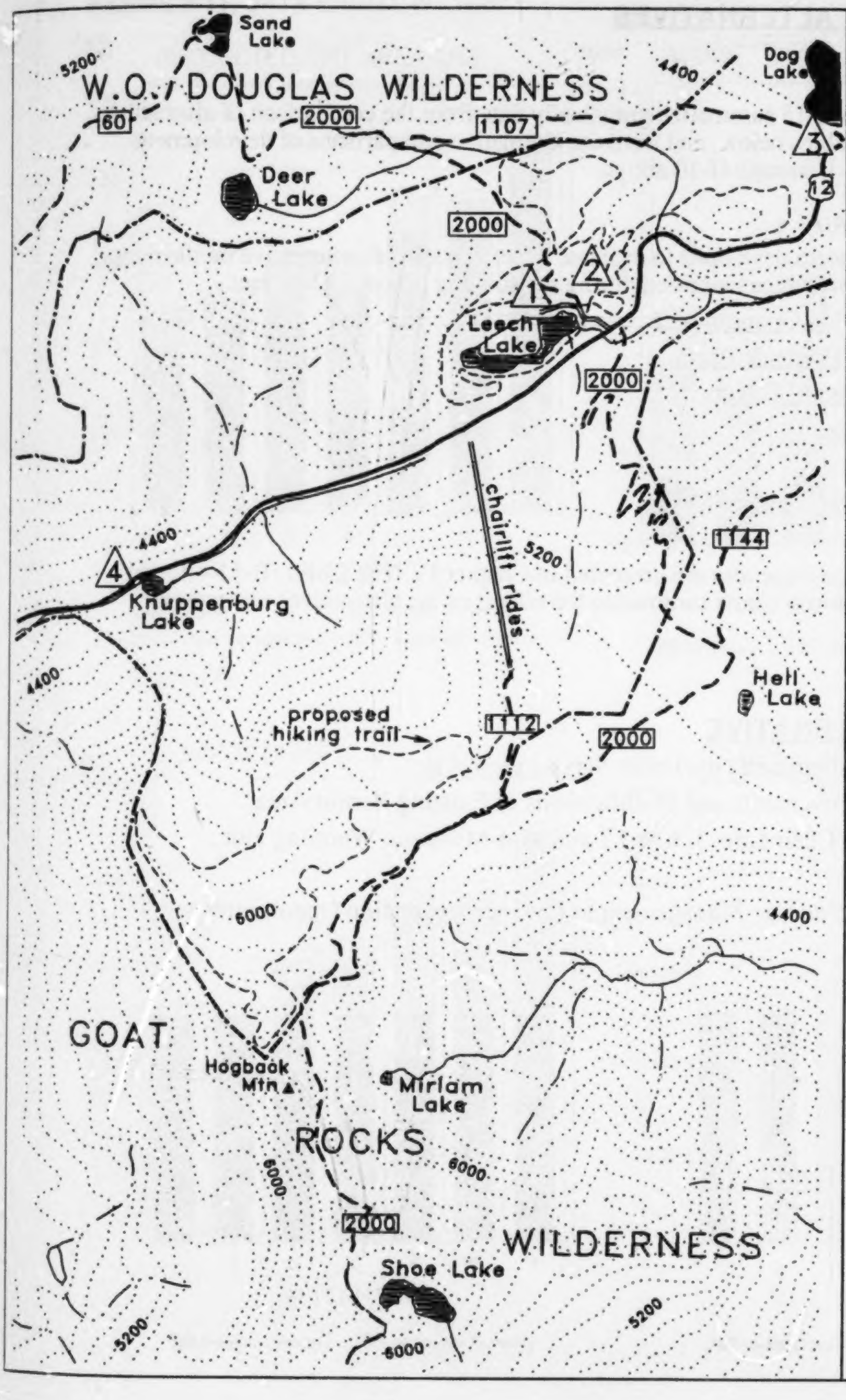

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
60
2000
1107
4400
Dog Lake
3
12
Deer Lake
2000
2
1
Leech Lake
2000
chairlift rides
5200
1144
4400
4
Knuppenburg Lake
4400
Hell Lake
proposed hiking trail
1112
2000
6000
4400
GOAT ROCKS WILDERNESS
Hogback Mtn
Miriam Lake
6000
6000
2000
Shoe Lake
5200
5200
6000
LEGEND
Mountain Bike Trail
Hiking/Horse Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
1 White Pass Campground
2 White Pass Horse Camp
3 Dog Lake Campground
4 Knuppenburg Lake Picnic Area
north
0 miles 1
160 ft contour interval

FIGURE II-10

White Pass Ski Area

ALTERNATIVE 10(S)

COMPARISON OF ALTERNATIVES

DATA CHARTS

Figures II-11 through II-15 summarize graphically data from the comparison of alternatives by Comparison Criteria tables below, and from the alternative comparisons of development characteristics, Tables II-1 through II-10 above.

COMPARISON CRITERIA

Comparison Criteria were developed to evaluate the effects of each alternative on the major issues concerns and opportunities identified during the scoping process. They are:

1. Additional Recreation Opportunities,
2. Unique Setting of Hogback Basin,
3. Physical and Biological Effects,
4. Wilderness Impacts,

and

5. Displacement of Backcountry Skiers.

The environmental consequences are presented in Chapter IV. The tables (II-11—II-15) following the data comparison charts summarize the effects of the alternatives using these Comparison Criteria.

PREFERRED ALTERNATIVE

The combination of alternatives the Forest Service prefers is:

Alternative 2 - Improvements and Modifications of Existing Permit Area,

Alternative 7 - Add Chair Lifts 5, 6 and 7 and Mid-Mountain Warming Hut ,

and

Alternative 10(S) - Summer Management to Enhance Recreation Opportunities

FIGURE II-11, DATA SUMMARY CHART

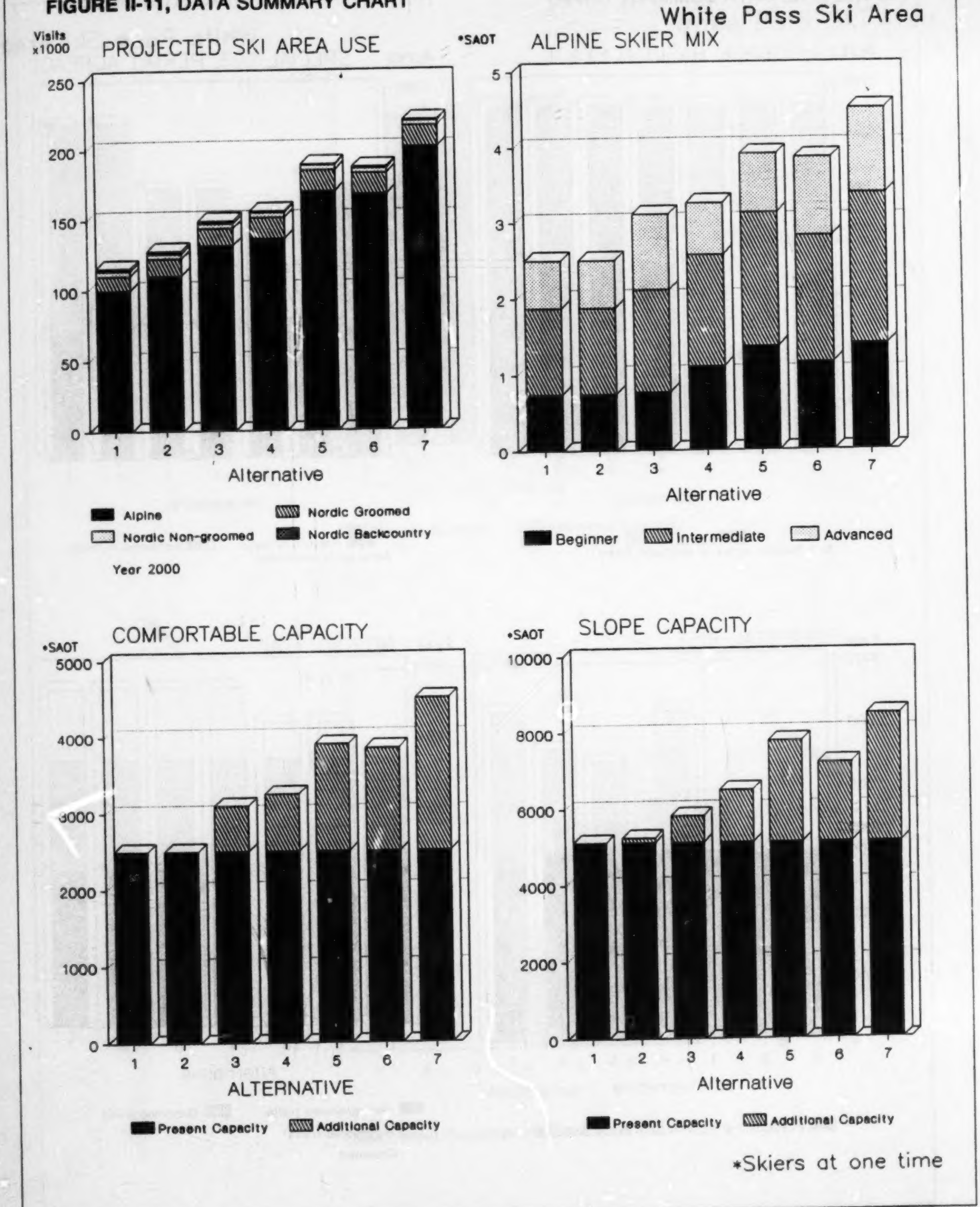


FIGURE II-12, DATA SUMMARY CHART

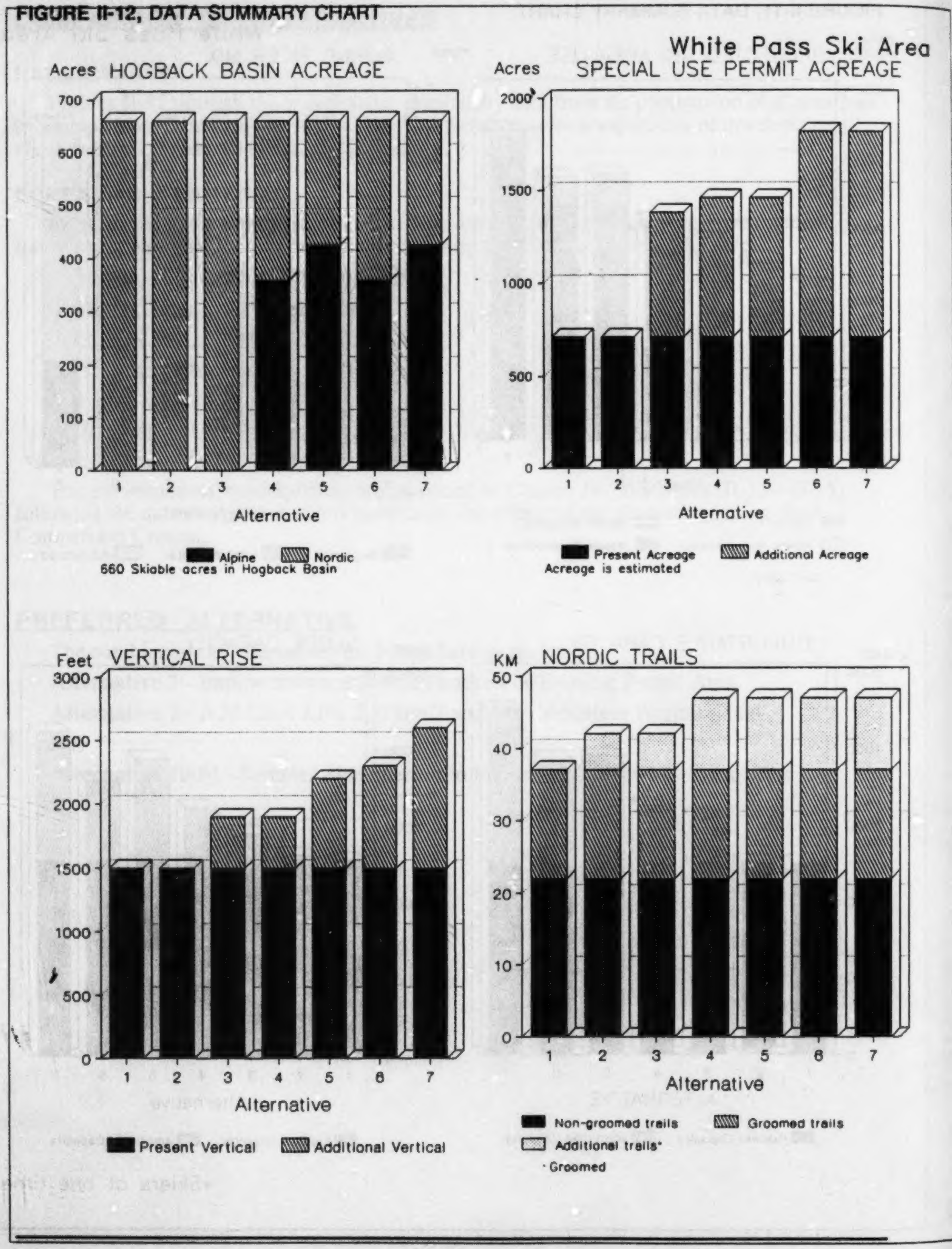


FIGURE II-13, DATA SUMMARY CHART

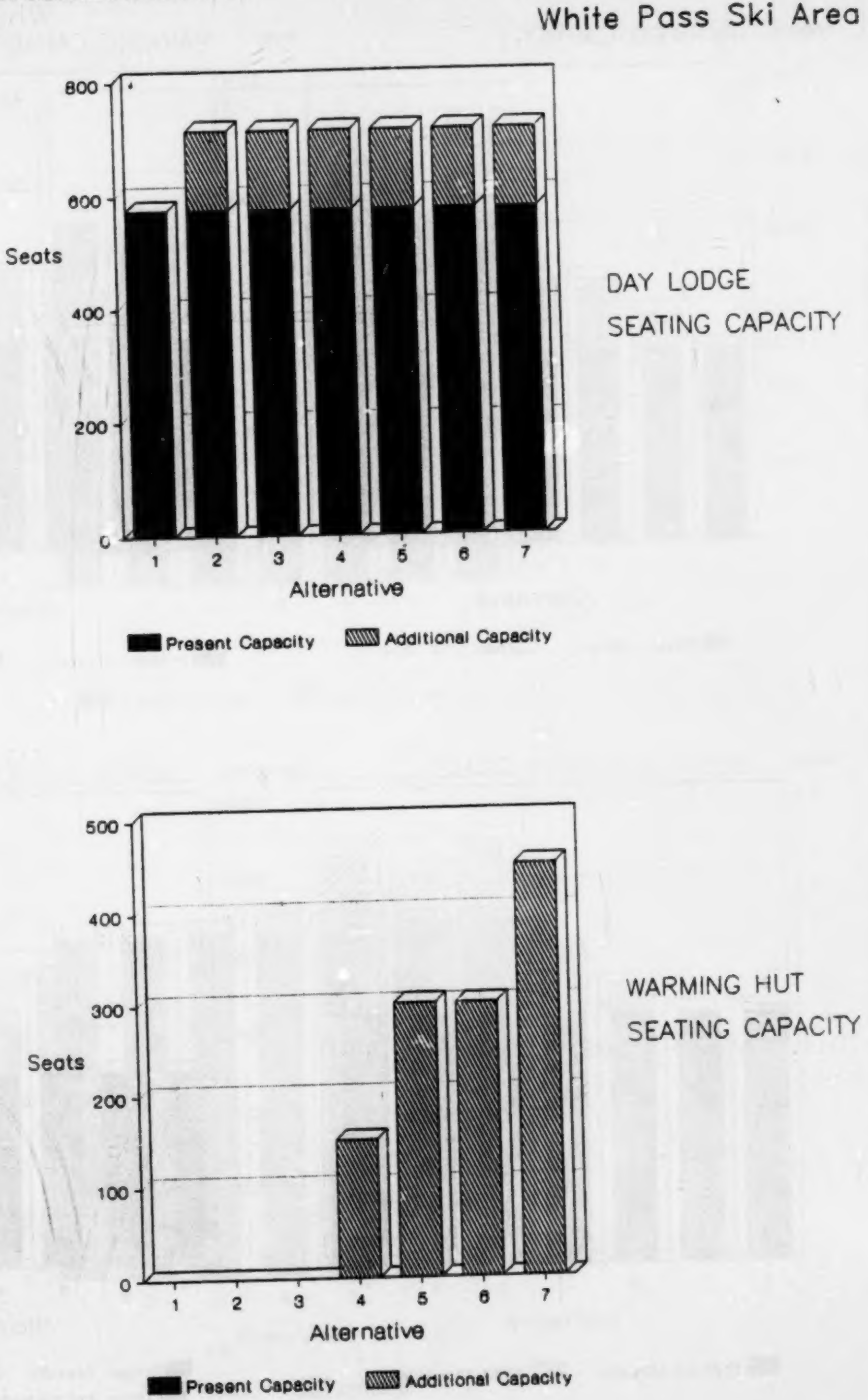


FIGURE II-14, DATA SUMMARY CHART

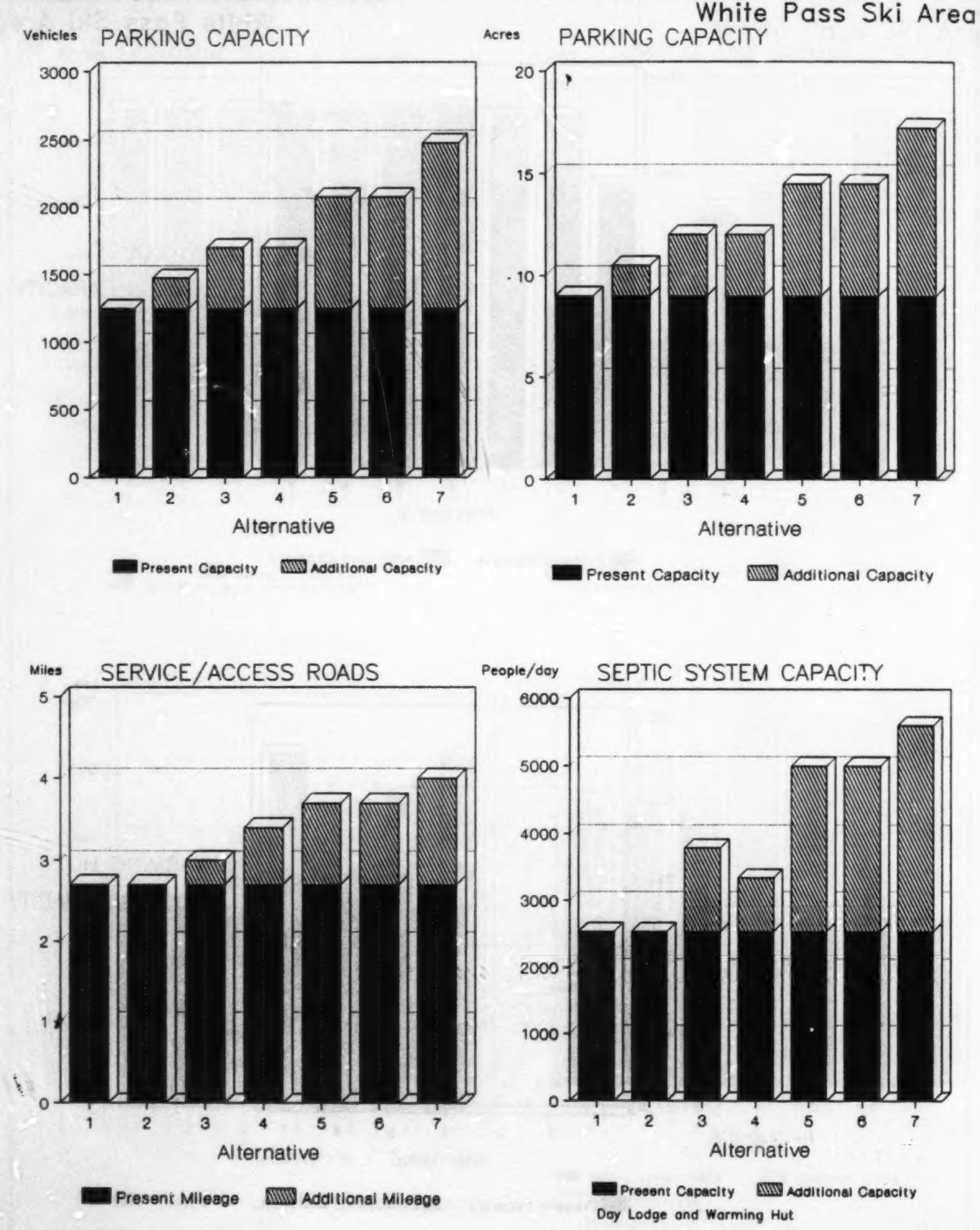
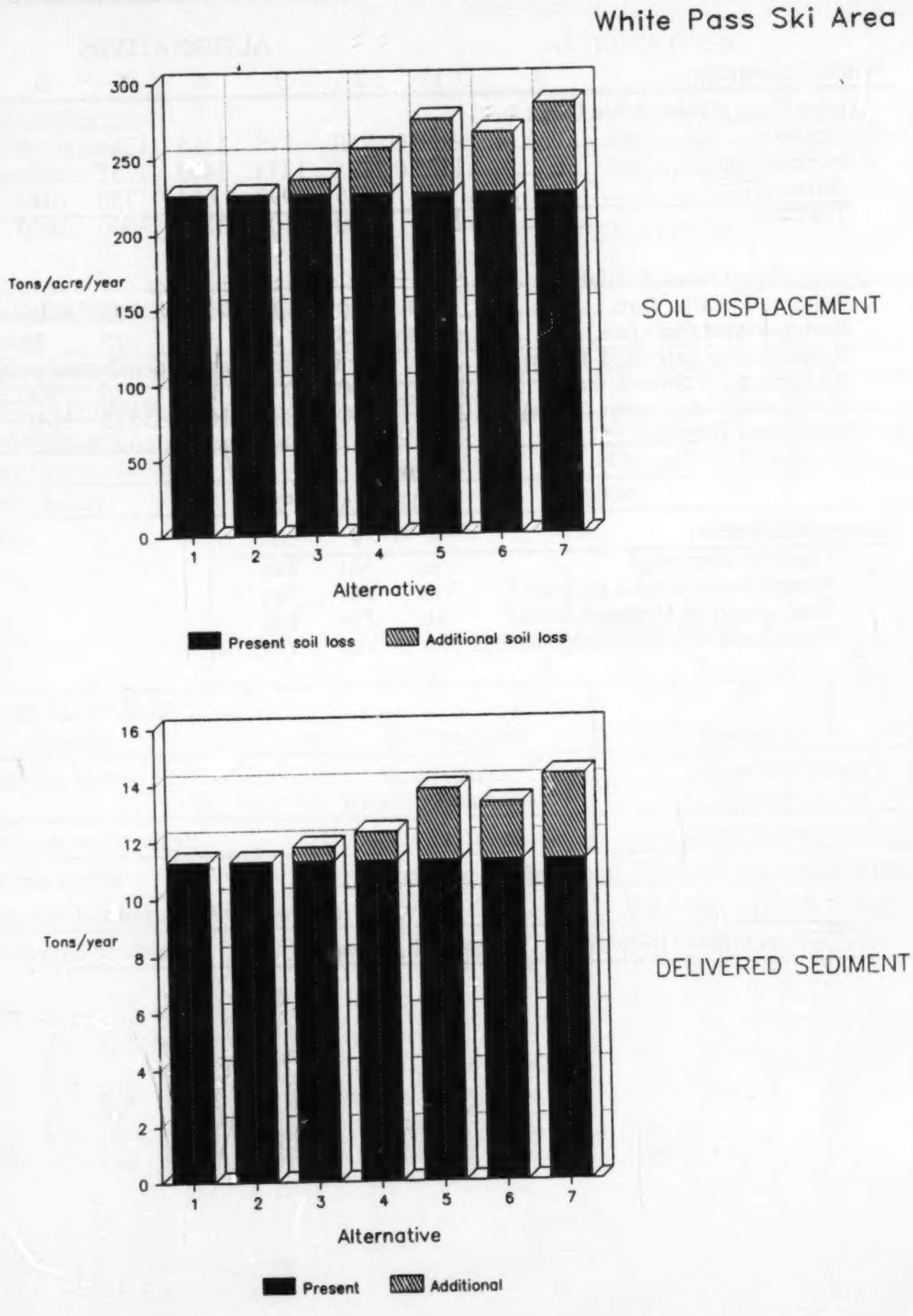


FIGURE II-15, DATA COMPARISON CHART



1. ADDITIONAL RECREATION OPPORTUNITIES - TABLE II-11

	ALTERNATIVES						
Winter Recreation	1	2	3	4	5	6	7
Alpine Skier (Comfortable Capacities)							
Beginner	750	750	775	1105	1365	1155	1395
Intermediate	1125	1125	1333	1462	1755	1655	1980
Advanced	625	625	992	683	780	1040	1125
TOTAL	2500	2500	3100	3250	3900	3850	4500
Nordic Skier (Acres Available)							
Groomed trails (km.)	15	20	20	25	25	20	25
Non-groomed trails (mi.)	25	25	25	25	25	25	25
Backcountry-extended tourer	[Use is primarily outside affected area]						
Backcountry-Telemark (acres)	1000	1000	1000	900	735	900	735
Backcountry- day tourer (acres)	2000	2000	2000	1640	1575	1640	1575
Lift-served Telemark	[Included with Alpine Skiers]						

	ALTERNATIVES		
Summer Recreation	8	9	10
Chair lift operating?	Yes	No	Yes
Interpretive/naturalist program?	Yes	Yes	Yes
Trail system in Hogback Basin?	No	No	Yes
Wilderness objectives emphasized?	Yes	Yes	Yes

2. UNIQUE SETTING OF HOGBACK BASIN - TABLE II-12

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available For:							
Nordic skiers	660	660	660	300	235	300	235
Alpine skiers	0	0	0	360	425	360	425

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Backcountry Nordic Skier:							
Isolation	Retained			Difficult to Achieve			
Independence and self-reliance	No Restrictions on Individual Choices						
Closeness to nature	Retained			Still Possible			
Tranquility	Retained			More Distractions/Encounters			
Semi-primitive setting	Retained			Changed to Roaded-Natural			
Scenic Quality	Retained						
Access	Retained			Too Easy			

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Alpine Skier							
High elevation	Not Available			Available			
Snow conditions	Restricted to Existing Conditions			Upper Elevation Conditions Avail.			
Access to scenic views	Good Views Accessible			Even Better Views Accessible			
Variable terrain (B=begin; I=intermed; A=advanced)	Good Mix Avail.		Increased Terrain Made available for: A	B/I	B/I	B/I/A	B/I/A
Uncrowded conditions	Crowding Increases		Uncrowded Conditions Retained				

3. PHYSICAL AND BIOLOGICAL EFFECTS - TABLE II-13

	ALTERNATIVES						
	1	2	3	4	5	6	7
Soil Displacement (tons/year)	226.5	226.5	236.2	256.5	275.3	266.2	285.0
Delivered Sediment (tons/year)	11.3	11.3	11.6	12.8	13.8	13.3	14.3
Mass Movement	No areas with Mass Movement Potential will be impacted						
Water Quality	Slight increases possible in sediment as rated above. No other effects on water quality anticipated with planned mitigation.						
Wildlife Habitat	No adverse effect on wildlife habitat.						
Vegetative Clearing							
Heavy Timber	315	323	375	325	325	385	385
Open Stands	0	0	0	75	140	75	140
Visual Quality Areas (acres) Impacted with Retention, VQO and Low VAC. (The most sensitive areas)	315	323	375	325	325	385	385

4. WILDERNESS IMPACTS - TABLE II-14

Alternative	Social/Physical Impacts	Users Solitude	Impacts to Views
1& 8(S)	Use increases at rate comp-arable to other areas	No change from present	No significant increase
2	Winter increases at rate greater than rec. trends. Could contribute summer uses.	Small change in opportunities for solitude, winter & summer	No change in view
3	Comparable to Alt. 2.	Comparable to Alt. 2.	No impact to Wilderness view.
4	Increases in winter ski touring. Summer increases same as Alt.2	Opportunities decreased by adjacent facilities.	Some adjacent views altered.
5	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
6	Slight decrease in impacts from Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
7	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
9(S)	Reduction in summer encounters.	Reduction in summer encounters.	N/A
10(S)	Opportunity to reduce or increase depending on planning.	Opportunities to increase or decrease depending on planning.	N/A

5. DISPLACEMENT OF BACKCOUNTRY SKIERS - TABLE II-15

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available							
in Hogback Basin	660	660	660	300	235	300	235
in Study Area	2500	2500	2500	2140	2075	2140	2075

(Additional backcountry nordic skiing opportunities exist outside the study area, however the White Pass situation is considered unique—see Comparison Criterion #2)

CHAPTER III
AFFECTED ENVIRONMENT

This chapter describes the current physical, biological and socio-economic environments that could be affected by implementing the alternatives. To aid in describing the effects of implementing the alternatives skiing characteristics of White Pass are also presented.

INTRODUCTION

Potential biological and physical impacts mostly concern the area within the present or proposed ski area boundary. However effects on both the William O. Douglas and Goat Rocks Wildernesses are possible, especially in the Shoe Lake and the Miriam Creek Basins. The trail system, especially the Pacific Crest National Scenic Trail (PCT), may also be affected. Some secondary effects may be anticipated along the Highway 12 corridor east and west of White Pass.

Socio-economic influences would be felt over a larger area. The most direct social and economic effects would be in the Packwood and Randle areas to the west and in the Tieton River-Rimrock Lake areas to the east. The Yakima area would also feel some economic consequences.

SKIING CHARACTERISTICS OF WHITE PASS

LAND BASE

The entire study area is National Forest System land. The current White Pass Company Special Use Permit for the ski area covers 689 acres, which include 315 acres that have been cleared and graded for lifts and ski trails. The proposed expansion area comprises 1,300 acres, 800 of which were removed from the Goat Rocks Wilderness. The base area buildings, parking, and support facilities lie adjacent to the highway.

Groomed nordic ski trails and the condominiums, north of U.S. 12 , are also under Special Use Permit. This involves 15 kilometers of groomed trails and 23 acres for the condominium area.

TERRAIN

The elevation of White Pass is 4,500 feet. Pigtail Peak, the top of the existing area, is 6,000 feet, giving a vertical rise of 1,500. The proposed expansion would provide skiing from Knuppenburg Lake at 4,100 feet to Hogback Mountain at 6,680 feet, a vertical rise of 2,580 feet.

Most of the terrain lies on a northerly exposure, the preferred orientation for snow quality and snow retention. A cliff band just above the 4,880-foot level breaks the continuity of the slope and has required special designs to provide fall-line skiing and to segregate skiers by ability. It is a barrier to beginning and intermediate skiers.

CAPACITY

Table III-1 summarizes the capacity of the existing lifts and runs. The present slopes can accommodate more skiers than there is lift capacity to take them up the hill (5,125 vs. 3,700). The company considers about 2,500 skiers at one time to be the "Comfortable Capacity" of the area while still maintaining their quality objectives. There are factors limiting "optimum" use of the slopes. The rock cliff through the middle of the area forms a barrier and a place where skiers congest. Another congestion area is just off the top of Pigtail Peak along the cat road. Weather conditions may also tend to concentrate skiers in some portions of the area. These all reduce dispersion on the slopes. White Pass Company's goal is to maintain a "quality" skiing experience, with short lift lines and uncrowded slopes, hence the lower Comfortable Capacity.

TABLE III-1, Existing Skier Capacities, White Pass Ski Area

Lift Capacity (4 chair lifts, Platter lift, rope tow)........................3,700 SAOT*

Slope Capacity		Slope Capacity		Comfortable Capacity†		Optimum
	Acres	SAOT	%	SAOT	%	%
Beginner (Novice)	70	1750	34	750	30	25
Intermediate	185	2775	54	1125	45	50
Advance (Expert)	60	600	12	625	25	25
TOTALS	315	5125	100	2500	100	100

[* Skiers At One Time; †White Pass Co. input: Comfortable Capacity=SAOT while maintaining skiing quality goals.]

(Source: White Pass Company Master Plan, 1979)

SNOW COVER

The Master Plan states that the average annual snowfall at White Pass is 150 to 200 inches. This compares favorably with other Pacific Northwest ski areas and with many western destination resorts.

The elevation of a ski area is extremely important insofar as the higher the elevation, the greater the snowfall, the greater the accumulation of snow, and the longer the ski season. Snow accumulation at the top terminals of Chair Lifts 1 and 2 is reported to be one and one-half to two times greater than in the base area.

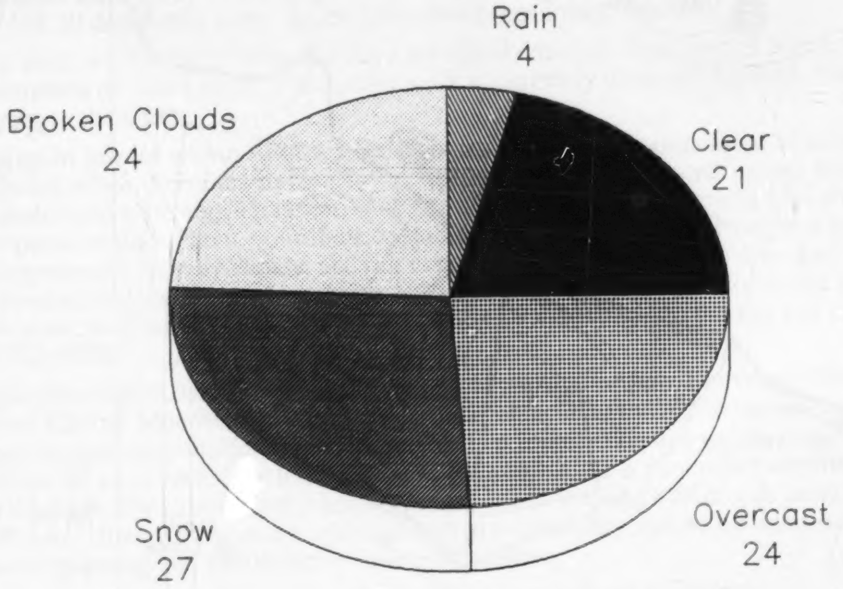
WEATHER

Good snowfall and retention provide a ski season of about 160 days per year. This is, however, subject to the great variations in weather which are common in most United States regions, and also to the extremes common to the North American Western Coastal Ranges.

Daily weather observations were made at the Ski Area during the October to April ski seasons from 1977 to 1987. These are summarized in Figure III-1.

For the Master Plan, micro weather data were collected in the Ski Area during the 1977-78 snow season. This was a good, average year. These 185 observations are summarized in Table III-2.

FIGURE III-1, WEATHER OBSERVATIONS, 1977-1988 NORMAL SKI SEASON



Percent of Total Observations

(Source: Observations and records of Mary Mahre, wife of Mountain Manager Dave Mahre)

TABLE III-2, SNOW AND TEMPERATURE OBSERVATIONS, WHITE PASS, WASHINGTON, OCT. 30, 1977—MAY 13, 1978

Monthly Summaries - Base Area

Month	Snow Depth (in.)	Temperature (°F.)
October	6	32
November	5-21	36
December	3-24	10-36
January	22-44	5-30
February	43-54	10-34
March	53-18	14-36
April	18-10	20-37

(Source: Ski Area Records. From "A Master Plan Program for White Pass Washington," Mel Borgersen & Associates, Ltd., May, 1979)

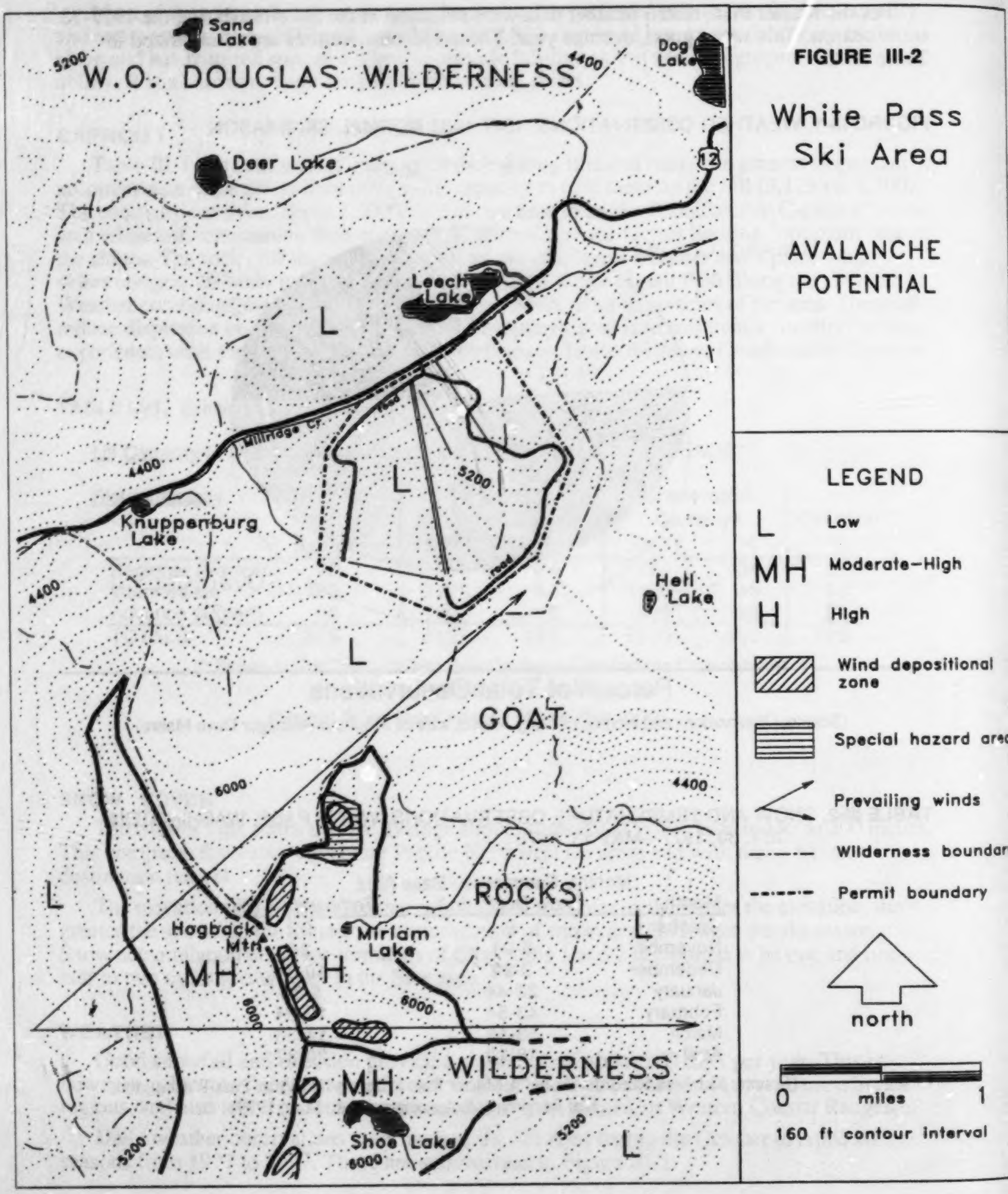


FIGURE III-2

White Pass Ski Area

AVALANCHE POTENTIAL

Sand Lake
5200
4400
Dog Lake
W.O. DOUGLAS WILDERNESS
Deer Lake
12
Leech Lake
L
road
Millridge Cr.
4400
L
5200
Knuppenburg Lake
road
4400
Hell Lake
L
GOAT
6000
4400
L
ROCKS
Hogback Mtn
Miriam Lake
L
MH
H
6000
6000
WILDERNESS
MH
5200
Shoe Lake
6000
5200
L
LEGEND
L Low
MH Moderate-High
H High
Wind depositional zone
Special hazard are
Prevailing winds
Wilderness boundar
Permit boundary
north
0 miles 1
160 ft contour interval

AVALANCHE POTENTIAL

Avalanche potential within the study area is shown in Figure III-2. The existing White Pass Ski Area is classified as a Class C avalanche area. Class C means a low incidence of avalanches and a low risk.

Winds from the south, southwest and west tend to develop ridge-line cornices and heavy snow deposits on the lee side of the ridges above the ski area. Some of these slopes are between 30 and 50 degrees in pitch, which also contributes to slide hazards.

Slide areas within the existing Ski Area are readily accessible to control personnel from the upper terminals of lifts 1 and 2. No control work is currently done on Hogback Mountain and other areas to the south.

Avalanche hazard within Hogback Basin is negligible. The combination of terrain and prevailing storm winds promotes stable snow conditions. The Basin's north aspect minimizes conditions associated with high-radiation, springtime instability. Snow pack in mid-winter and uniform temperature throughout, contribute to stability. Also, average slope angle is between 10 and 15 degrees and most avalanche activity occurs on slopes from 30-45 degrees. Extending present avalanche control practices into this area would provide for safety of skiers, although the area needs to be checked for small pockets, swales or steep pitches that might require special control.

Relative to high (Class A) avalanche areas such as Alta in Utah, Heavenly Valley in California and Crystal Mountain in Washington, the avalanche hazard for areas outside the proposed permit area are considered moderate. This is primarily due to weather-induced changes within the snowpack. The temperature of the snow itself is generally near freezing and this causes the snow crystals to bind together. Freezing and thawing cycles also contribute to stable conditions. However, there are cycles of extreme instability caused by wind-deposited snow, especially during and immediately following storms.

Avalanche potential of five areas of concern is summarized as follows:

WEST SIDE OF HOGBACK RIDGE - MODERATE RISK AT ALL TIMES.

- Slopes over 30 degrees.
- Prevailing wind is southwest to west.
- High risk with quiet storms (winds less than 7-8 mph.) which result in heavy deposits on these windward slopes.
- Also subject to strong solar radiation which can cause wet snow avalanches.

MIRIAM BASIN - HIGH RISK AREA

- Slopes of 20-30 degrees, with steep rock outcrops at the head of the Basin.
- Wind is the primary factor creating hazard here.
- In lee of ridge, which results in heavy, unstable snow deposits and slab avalanche potential.
- Cornices also form which results in additional risk, both as an avalanche triggering factor and as an enticing but unstable viewpoint for skiers.

SHOE LAKE BASIN - MODERATE TO HIGH RISK AREA

- Similar conditions to Miriam Basin.
- Also has periods of high hazard during warm periods of high solar radiation.

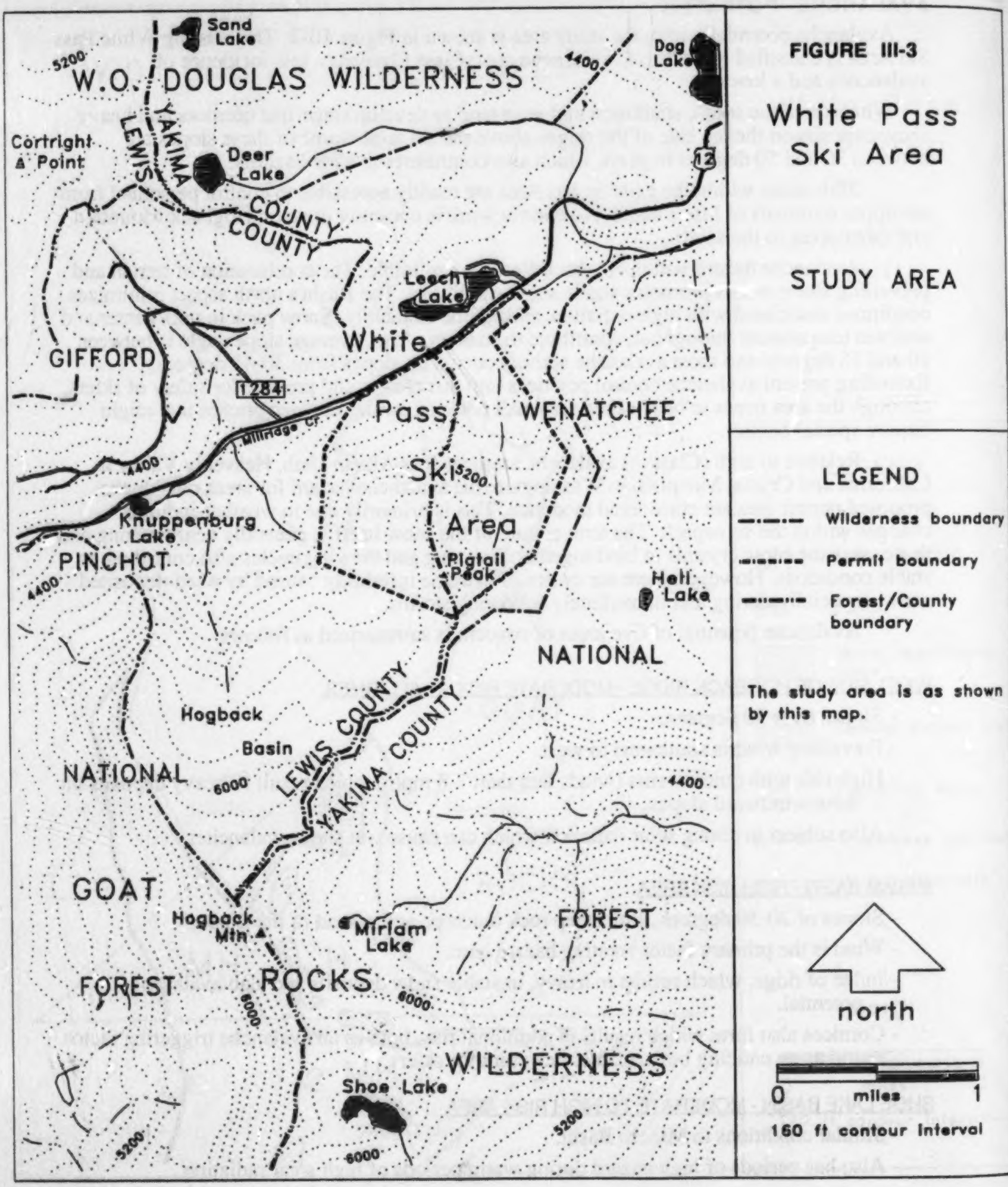


FIGURE III-3

White Pass Ski Area

STUDY AREA

Sand Lake
Dog Lake
5200
4400
W.O. DOUGLAS WILDERNESS
LEWIS
YAKIMA
COUNTY
COUNTY
Cortright Point
Deer Lake
12
Leech Lake
White
GIFFORD
1284
Millridge Cr.
Pass
WENATCHEE
4400
Ski
5200
Area
Knuppenburg Lake
PINCHOT
Pigtail Peak
Hell Lake
4400
NATIONAL
LEWIS COUNTY
YAKIMA COUNTY
Hogback
Basin
NATIONAL
6000
4400
GOAT
Hogback Mtn
Miriam Lake
FOREST
FOREST
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Wilderness boundary
Permit boundary
Forest/County boundary
north
0
miles
1
160 ft contour interval

The study area is as shown by this map.

SOUTHERN END OF HOGBACK RIDGE (OFF MAP)

- Steep, strongly insolated slope.
- Attractive to more adventuresome skiers who desire to cover more ground.
- May be unstable due to heavy snow deposits and high solar radiation.

EAST OF UPPER TERMINAL - PROPOSED CHAIR LIFT #5

- A portion of Miriam Basin, but easily reached from the lift.
- A steep, rocky starting zone for avalanches.

BIOLOGICAL AND PHYSICAL DESCRIPTION AND CURRENT RESOURCES

TOPOGRAPHY

The study area lies on both sides of the crest of the Cascade Mountains. Elevation at White Pass is 4,500 feet. The area south of the pass is characterized by a network of hogback ridges rising to 6,500—6,800 feet above sea level. Glacial cirques drop off these ridges, e.g., Hogback Basin, Shoe Lake Basin and Miriam Lake Basin. On the south side of the pass the study area runs from 4,100 feet at Knuppenburg Lake to nearly 6,800 feet at Hogback Mountain. A cliff line traverses the middle of the area between the 4,800- and the 5,200-foot levels. Generally smooth slopes lie below the cliff area. The area north of the Pass is characterized as flat to rolling with some short, steep headwalls. [See Figure III-3 for the White Pass Study Area.]

CLIMATE

Precipitation is influenced by the Cascade Mountains. Moist air from the Pacific Ocean climbs over the Cascades, cooling as it rises. The cool air, unable to hold as much moisture as when it is near the ocean, drops a large part of it on the west side and along the crest of the mountains. Average annual precipitation at White Pass is about 45 inches. Much of this falls during the winter as snow, with average total snowfalls being 150 to 200 inches.

Winter temperatures may drop to -20 degrees F., and summer temperatures seldom exceed 80° F.

(See "Ski characteristics of White Pass," above for additional information on the area's weather.)

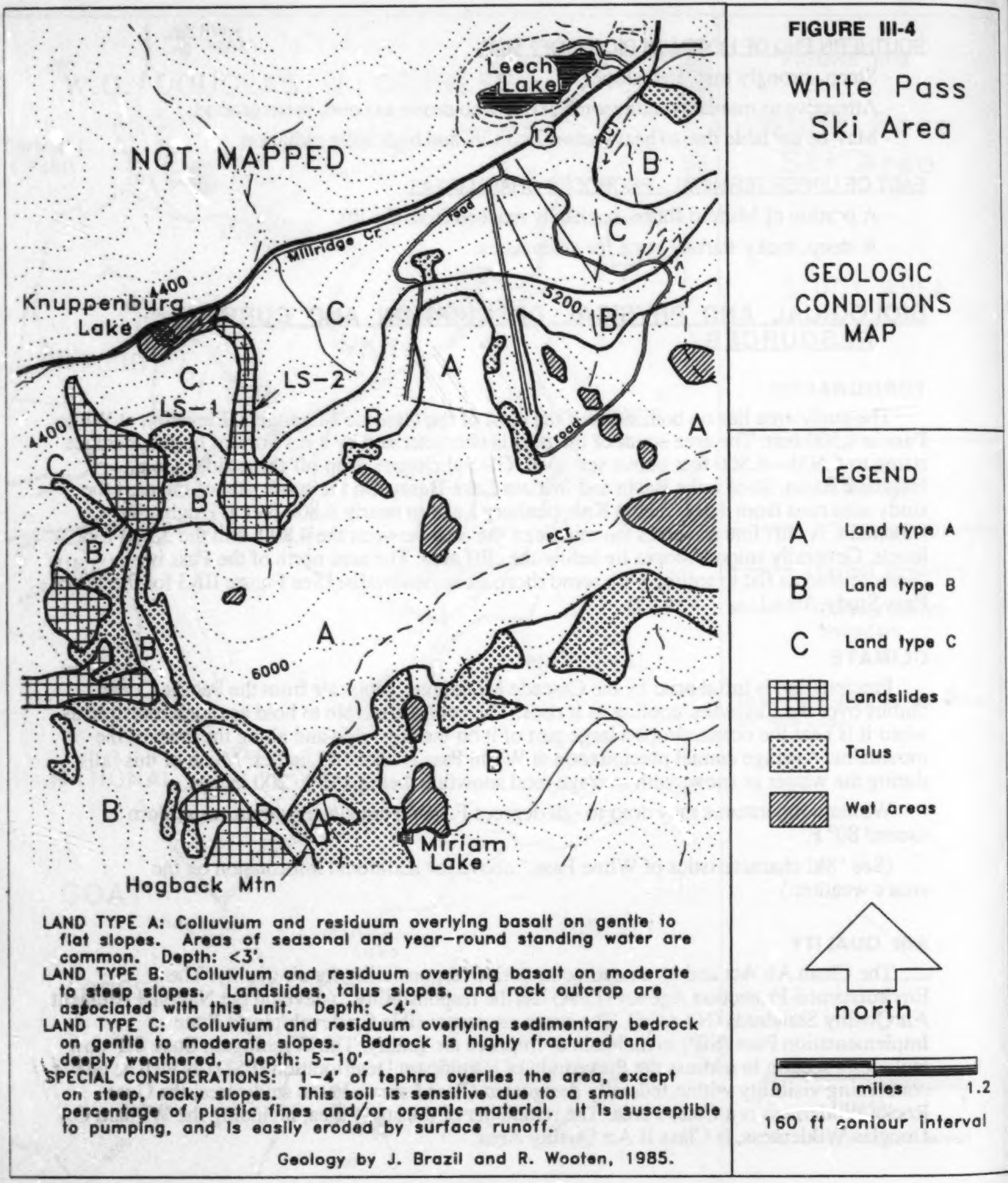
AIR QUALITY

The Clean Air Act and its amendments define responsibility for air quality. The Environmental Protection Agency (EPA) has the responsibility to develop the National Ambient Air Quality Standards (NAAQS). The states are responsible for developing a State Implementation Plan (SIP) to maintain or improve air quality. The Washington State SIP now includes a section to address the Prevention of Significant Deterioration (PSD) as well as one concerning visibility within federally designated Class I areas. In the study area, the Goat Rocks Wilderness is a Class I area. The remainder of the study area, including the William O. Douglas Wilderness, is Class II Air Quality Area.

FIGURE III-4

White Pass Ski Area

GEOLOGIC CONDITIONS MAP


NOT MAPPED
Leech Lake
12
Millridge Cr.
road
Knuppenburg Lake
4400
5200
LS-2
LS-1
PCT
6000
A
B
C
Miriam Lake
Hogback Mtn
LEGEND
A Land type A
B Land type B
C Land type C
Landslides
Talus
Wet areas
north
0 miles 1.2
160 ft contour interval

LAND TYPE A: Colluvium and residuum overlying basalt on gentle to flat slopes. Areas of seasonal and year-round standing water are common. Depth: <3'.

LAND TYPE B: Colluvium and residuum overlying basalt on moderate to steep slopes. Landslides, talus slopes, and rock outcrop are associated with this unit. Depth: <4'.

LAND TYPE C: Colluvium and residuum overlying sedimentary bedrock on gentle to moderate slopes. Bedrock is highly fractured and deeply weathered. Depth: 5-10'.

SPECIAL CONSIDERATIONS: 1-4' of tephra overlies the area, except on steep, rocky slopes. This soil is sensitive due to a small percentage of plastic fines and/or organic material. It is susceptible to pumping, and is easily eroded by surface runoff.

Geology by J. Brazil and R. Wooten, 1985.

The Forest Service works with the State of Washington to assure that projects and programs are in compliance with the SIP. Most of the effort has been to assure that prescribed fire programs comply with the direction outlined in the SIP. Another effort has involved the protection of visibility within Class I areas.

Air Quality within the study area is generally good. The prevailing winds are from the west, which brings air from the Puget Sound airshed. This airshed is heavily impacted and there are some days when hazy air is pushed into the study area. However, the area is well above the inversion level that traps pollutants and leads to air quality problems.

East winds also occur, primarily in the fall. This reverse flow is significant in that when it happens prescribed burning is curtailed to prevent adding pollutants to the Puget Sound airshed.

GEOLOGY AND PHYSIOGRAPHY

LAND TYPES

Three distinct geomorphic land types based on terrain and underlying geologic materials are described in "A Geotechnical Assessment of the White Pass Proposed Expansion," by James P. Brazil and Richard M. Wooten, November, 1985. These descriptions are as follows, with the authors' comments on slope stability and groundwater. A Geologic Conditions Map is included as Figure III-4.

LAND TYPE A

Gentle northeast- to northwest-facing slopes between Hogback Ridge and Ginnette Lakes (in Hogback Basin) characterize Area A. Elevations range from 6789' at Hogback Mountain to 5820' at the northern limit of the unit. Underlain by relatively young, resistant basalt, the area is generally poorly drained, with few well-defined drainage networks. Areas of internally drained topography combined with shallow soil result in numerous areas of seasonal or year-round standing water.

LAND TYPE B

Moderate to very steep slopes that surround Type A. Talus slopes, landslides, and rock outcrops are associated with this landform, which is underlain by basalt.

LAND TYPE C

Gentle to moderate slopes in the northernmost map area below 4,800' consist mainly of colluvial and residual soil from highly-fractured, deeply-weathered sandstone, siltstone and graywacke. Drainages are more developed and incised in this unit because of less resistant rock.

SLOPE STABILITY

Because of steep slopes associated with Land Type B, existing slope failures occur mainly in this unit on north to west facing slopes. Landslides consist mainly of areas of active rockfall and translational movement of rocky material. Gradational into talus slopes, rapid movement and mass wasting are more characteristic of slides. Slopes most susceptible to failure in the area are steep ones (+75%) in Land Types B and C that are associated with concentrated surface runoff or springs. Additional information is provided for the following landslides:

LS-1 (NE1/4, SW1/4, Sec. 15): A large slump block at the toe of this landslide indicates a rotational component of movement.

LS-2 (NE 1/4, Sec. 15 to SE 1/4, Sec. 10): Movement in Section 10 appears due to oversteepening of highly fractured bedrock slopes by downcutting action of the stream feeding Knuppenburg Lake.

GROUNDWATER

Groundwater seeps and springs are most common on north-facing slopes in land Type B and at the contact of Land Types B and C. Permeable, north-dipping, scoriaceous or breccia zones between basalt layers in land Type B transmit groundwater in a northerly direction.

MINERALS

The study area has very little mineralization. However, there is a group of patented and unpatented mining claims for building stone. These claims are located to the northeast between Dog Lake and White Pass. The claims are owned by Burton Lehman. Two Special Use Permits are associated with them. One is a road permit that gives Lehman exclusive use of the road. The other is for a 1,900' water line with the provision for "free and unrestricted access at all times for lawful and proper purposes."

SOILS

Soils at the White Pass Ski Area and the proposed areas for expansion are generally stable but subject to moderate to severe surface erosion once their protective duff and vegetation layers are removed. The soils can be difficult to revegetate because of site-specific climatic and soil fertility conditions.

The following is a discussion of soil units in the area. (See Figure III-5, Soil Mapping Units.)

SOIL UNITS 1 (FROM THE WENATCHEE SRI) AND 45 (FROM THE GIFFORD PINCHOT SRI)

Units 1 and 45 are high-elevation, benchy meadowlands with low-site timber on the slopes surrounding the upper terminals of Chair Lifts 1 and 2. They are generally well drained with the exception of the actual meadows, but potential for surface erosion is severe once the soils are exposed. The flat slopes these soils are found on preclude mass movement problems.

Revegetation is difficult because of the short growing season, low fertility, and cold soil temperatures. For reseeding to be successful it is imperative that the grass species be compatible with the soil climatic conditions. Planting must be done when soil temperature and moisture content are at their optimums.

SOIL UNIT 7 (GP-SRI)

Found on rugged, rocky landforms with low-site timber, Soil Unit 7 consists of rock outcrop, talus, and avalanche tracks that occur on ridge tops, in cirque basins, and on upper side slopes generally west of the upper terminals of Chair Lifts 1 and 2. Potential for surface erosion is severe when the duff is removed. Revegetation of this unit is limited because of topography, climate and rocky conditions.

SOIL UNITS 17 (GP-SRI) AND 664 (W-SRI)

These are similar in that they both occur on the valley bottoms and gentle toe slopes at White Pass. Their locations on these gentle slopes relate to their moderate potential for surface erosion and mass movement. Climatic conditions and low soil fertility are major limitations to revegetation in these soils.

SOIL UNITS 41 (GP SRI) AND 63 (W SRI)

These are shallow, non-plactic soils derived from residuum and colluvium. They occur on the steep slopes in the upper portion of the existing ski area and on the slopes above Knuppenburg Lake. They are stable, well drained, permeable, and subject to moderate to severe surface erosion. The short growing season, low soil fertility and cold soils contribute to revegetation problems.

SOIL UNITS 46 AND 46F (GP-SRI)

These occur in Hogback Basin. They're shallow to moderately deep, non-plactic soils and are well drained and permeable. Soil Unit 46 occurs on the rough, rocky and irregular slopes of the Basin above 6000 feet. Unit 46F, similar to unit 46 in physical characteristics, is the predominant soil type in the Basin. Its limitations to regeneration are the short growing season of the area, cold soils and/or a high water table that leads to a park-like situation of meadows between clumps or stringers of established trees.

SOIL UNITS 62 AND 625 (W-SRI)

These units are generally shallow to moderately deep (commonly 1-4 feet), with local inclusions of very deep soils derived from glacial deposits. They occur on the eastern edge of the existing permit area. Once the duff and vegetation layers are removed these soils have potential for severe surface erosion. Their limits to regeneration are the short growing season and low soil temperatures.

TABLE III-3, SOIL MANAGEMENT CONSIDERATIONS

Soil Unit	Surface Erosion Potential	Natural Stability	Mass Movement Potential
1	severe	very stable–stable	unchanged
7	severe	stable–med. stable	increased
17	moderate	very stable–stable	unchanged
41	moderate–severe	stable	unchanged
45	severe	very stable–stable	unchanged
46	severe	very stable–stable	unchanged
62	severe	stable	unchanged
63	severe	stable	unchanged
67	moderate	very stable	unchanged
625	severe	very stable–stable	unchanged
664	moderate	very stable–stable	unchanged

KEY: RATING EXPLANATION

SURFACE EROSION POTENTIAL

Moderate: Some loss of surface soil material can be expected. Rill erosion and some small gullies or sheet erosion may be occurring. Sheet erosion can be determined by soil pedestals and observable accumulation of soil material along the upslope edge of rocks and debris. At a moderate erosion level fertility loss is possible.

Severe: Substantial loss of surface soil material can be expected. Rill erosion, numerous small gullies or extensive loss from sheet erosion may occur. Evidence of extensive sheet erosion is frequent occurrence of soil pedestals and considerable accumulation of soil materials along the upslope edge of rocks and debris. At a severe erosion level fertility loss is probable.

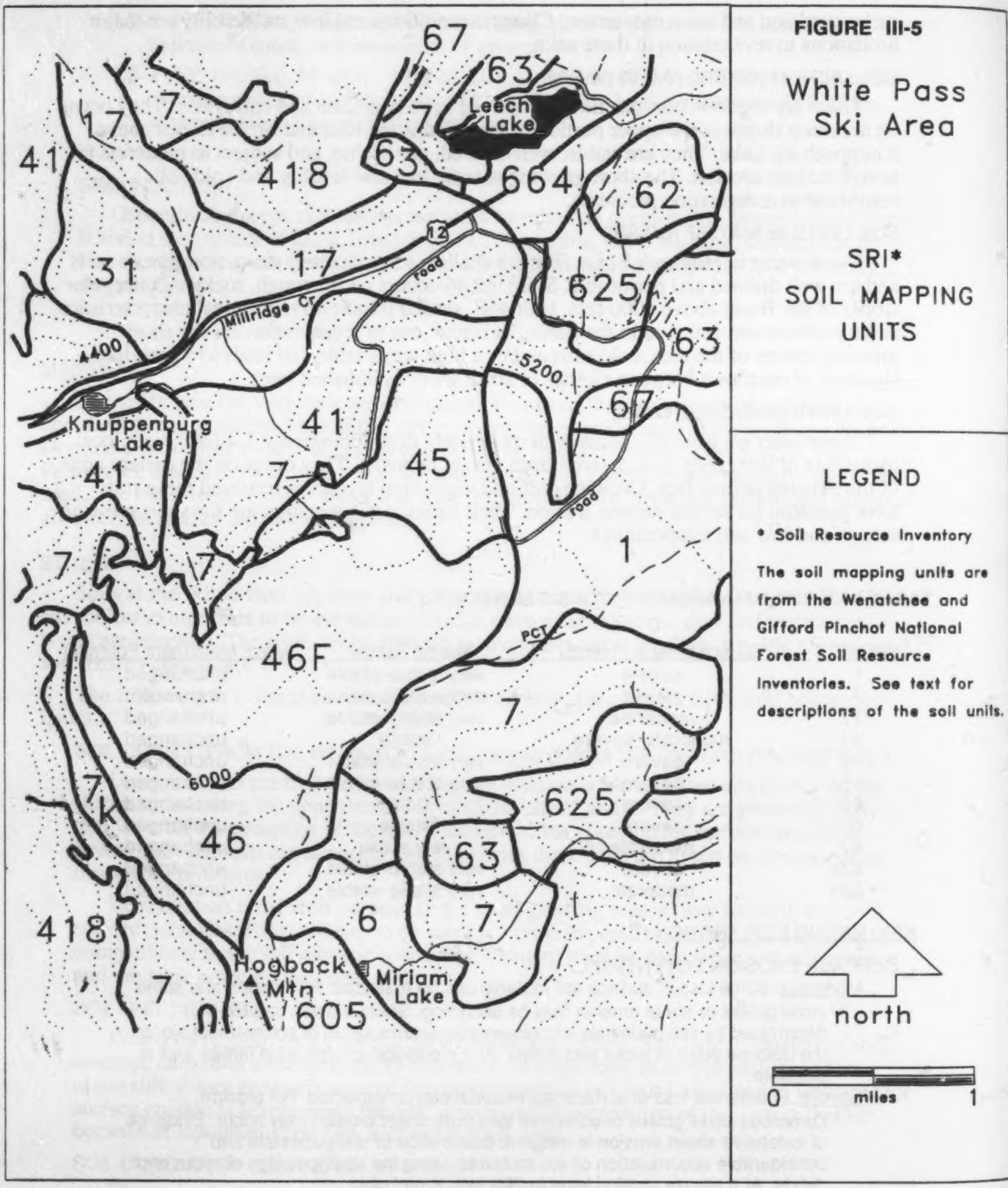

67
63
7
Leech Lake
17
41
7
418
63
664
62
12
Road
31
17
625
Millridge Cr
4400
63
5200
67
Knuppenburg Lake
41
45
41
7
Road
7
7
1
PCT
46F
7
6000
625
7
k
46
63
418
6
7
Hogback Mtn
Miriam Lake
7
605
north
0
miles
1

FIGURE III-5

White Pass Ski Area

SRI* SOIL MAPPING UNITS

LEGEND

* Soil Resource Inventory

The soil mapping units are from the Wenatchee and Gifford Pinchot National Forest Soil Resource Inventories. See text for descriptions of the soil units.

NATURAL STABILITY
Very stable: No evidence of failure
Stable: Occasional failures are observed.
Moderately stable: Several failures are observed.

MASS MOVEMENT POTENTIAL - Expected mass soil movement as a result of human activity.
Unchanged: Movement would leave the natural state relatively unchanged.
Increased: Movement would be greater than that of the natural state.

WATER

WATERSHED CHARACTERISTICS

Situated on the crest of the Cascade Mountains, The White Pass Ski Area has two watersheds. The western part of the ski area and the proposed expansion area lie at the headwaters of the Millridge Creek drainage, part of the Cowlitz River drainage. The eastern part of the ski area is in the Clear Creek and Tieton River drainages. Several springs are found flowing out of the slopes above the ski area base facilities at the geologic contact between very old sedimentary rocks and young overlying volcanics. These springs are sources for several perennial and intermittent streams in the White Pass area that feed Millridge and Clear Creeks. The majority of streams in the area are Class II. (Natural streams important from a water quality standpoint for domestic use, public recreation, fish spawning or wildlife.)

According to the Soil Conservation Service's Snotel gauge at White Pass (elevation 4500 feet), the pass's average annual precipitation for the years 1961 through 1988 is 45.9 inches. Table III-4 shows the monthly average precipitation and snow water equivalents for the pass since 1961.

TABLE III-4, AVERAGE ANNUAL PRECIPITATION, 1961-1988

	Precipitation	Snow Water Equivalent
October	3.2	0
November	6.9	0
December	8.3	3.3
January	7.8	10.3
February	5.5	17.2
March	4.1	22.0
April	2.8	25.3
May	1.8	24.8
June	1.8	15.2
July	0.5	0
August	1.4	0
October	1.8	0
TOTAL	45.9	

WATER USES

The ski area has tapped one of the springs, the easternmost fork of Millridge Creek, for their domestic water supply. Water from the White pass area drains into Clear Lake, Rimrock Lake, and eventually the Tieton and Yakima Rivers on the east side of the Cascades. The water is used for irrigation, fishery, wildlife, and recreation. Likewise, water flowing to the west enters the Cowlitz River system and is used for recreation, fishery and wildlife.

WATER QUALITY

LAKES

Water quality on lakes on National Forest land has been designated as Class AA by the State of Washington Department of Ecology. Table III-5 lists several lakes in or near the study area. No other information is readily available for the first six.

TABLE III-5, WHITE PASS AREA LAKES [SEE MAP, FIGURE III 3.]

Lake	Elevation	Size (acres)	Depth (feet)
Dog	4207	60.0	70
Hell	5414	3.4	50
Miriam	5789	2.0	20
Deer	5206	12.2	20
Sand	5295	7.2	4
Shoe	6112	15.8	26
Knuppenburg	4106	4.5	–
Leech	4412	41.0	15

The two lakes in the study area that could be impacted from activities at the White Pass Ski Area are Leech Lake and Knuppenburg Lake. Both lie downstream from and very near the ski area (Leech is within White Pass Company's northern permit area). Knuppenburg Lake is fed by Millridge Creek, whose source is in the existing and proposed development area. Leech Lake is fed by intermittent streams with their sources on the slopes of the ski area. The following is a summary of the physical characteristics, uses, and management of Leech and Knuppenburg lakes.

Leech Lake

County: Yakima
Location: T13N R11E SEC2, T13N R12E SEC1
Drainage: South Fork, Clear Creek

Physical Characteristics

Surface area: 41 acres
Elevation: 4,412 feet
Exposure: south
Normally ice-free: mid-May to mid-November
Mean annual water level fluctuation: maximum of 2 ft.
Bottom composition: ooze
Depth: range 15–2 ft.; 6 ft. common
Woody debris: fair number of snags recruited from lake shore
Amount of lake less than ten feet deep: approx. 95%

Inlets

Largest inlet enters from south side. Originated near Wilderness boundary.
0.3 mile surveyed in 1988. Average width of 11 ft.
548 ft. from mouth to 1st fish passage barrier, culvert at U.S. 12.
322 ft. from highway culvert to 2nd fish passage barrier at cascade/culvert for cross-country bridge and sewer line crossing
Good fish habitat upstream of culvert at highway. Spawning possibilities if barrier problems resolved.

4 or 5 springs enter on north side. Percent of total inflow from these is unknown. Areas where springs enter may provide important over-wintering fish habitat by supplying oxygen-rich water sources.

Outlet

0.6 mile surveyed in 1988. Survey ended at waterfall over 100 feet high. 15 ft. average width. Slope is moderate and the large number of brook trout of all age classes indicates this is an important spawning area in spite of it being unusual for fish to spawn in an outlet stream.

Remarks

The revegetation class is CHC9. Predominant tree species are mountain hemlock, cedar, western hemlock and white pine. Understory species include big huckleberry, dwarf Oregon grape, rusty Menziesia, Pachistima, Cascade azalea, currents, bear grass, princess pine, queencup beadlily and braken fern.

Water Chemistry - Sampled 4/18/89 using Hach Analysis methods

	Inlet		Outlet	
Test	at Lake	County Bridge	at U.S.12	Below Ski Area
Total alkalinity, mg/1	20.5	27.4	20.5	20.5
Dissolved 02, mg/1	9	11	9	10
Total Hardness, mg/1	17.1	17.1	17.1	17.1
pH	6.5	7.0	6.0	6.5
Ortho-P, mg/1	0.3	0.6	0.1	0.1
Temperature, °F	33	36	36	36

Biological Data

Aquatic Vegetation: Unidentified aquatic plant over large portion of lake. Horsetails (Equisetum arvense) common along shallow banks (most of shore).

Recreational Access and Use

Access: Leech Lake is located immediately off Highway 12. It has picnic and camping areas on the north and east sides of the lake. These contain largely defoliated, compacted and eroding banks. There is also a horse camp located in conjunction with the Pacific Crest Trail, which has a culvert crossing on the outlet stream near the highway.

Use: Heavy as a fly fishery and for other recreation.

Future Management

Leech Lake has a long history as a popular fishing spot. Complaints in recent years about depletion of large fish are being examined. The lake's shallow topography and possible overblooming due to pollutants reinforce the heavy fishing pressure and all these probably keep fish populations lower than the public desires.

Possible enhancement currently being considered includes a low check dam to raise the lake level. One program aims at improved fish passage from the inlet stream. The first phase of this project, a rehabilitation effort to mitigate damage from logging practices, was completed in 1988. Rocks and logs were placed in the inlet stream to channel water flow. Previously there were years when the stream went underground and/or dispersed through the timber between the highway and the lake.

EUTROPHICATION

Eutrophication of Leech Lake has been a concern at least since 1966. Eutrophication is a natural process that results in increased productivity of plant growth in a lake with reduced ability to decompose the material. At Leech Lake, reed vegetation has grown into the lake to such a degree that it is difficult to navigate a small boat.

The process can be accelerated by nutrient loading, i.e., by increasing nitrogen levels in the lake. One potential source of loading at Leech Lake could be sewage effluent from existing businesses and condominiums near it percolating through the soils into the lake. The drain field for these developments is located south, across the highway and between the lake's inlet and outlet streams.

Another possible cause for accelerated eutrophication is a drop in the level of the lake. In 1966, a proposal was made to build a dam in the outlet stream as a solution to reed growth. The dam was never constructed, even though the Washington Department of Fish and Game approved a hydraulic permit for it.

At this time it is unknown whether the eutrophication in Leech Lake is simply a natural process or whether it has been accelerated by development. No systematic study has been made of the Leech Lake Watershed. Three water samples taken by the Forest Service during the winter in 1988 from the inlet stream below the drain field, tested negative for coliform bacteria. One of two samples taken from the outlet stream and two samples taken from the western end of the lake, tested positive for coliform. Additional independent sampling by Gray and Osborne and water tested by Water Management Laboratories tested negative for fecal coliform (a more complete test report). Continued monitoring is needed.

KNUPPENBURG LAKE

County: Lewis
Location: T13N R11E SEC10
Drainage: Millridge Creek; Clear Fork Cowlitz River; Cowlitz R.

Physical Characteristics

Surface area: 4.5 acres
Elevation: 4,106 feet
Exposure: north
Normally ice-free: mid-May to mid-November
Mean annual water level fluctuation: 0.5 ft..
Bottom composition: ooze
Woody debris: low number of logs protruding into lake.
Amount of lake less than ten feet deep: approx. 40%

Inlets

1. Low gradient stream with good gravel and cover; width 5 ft., approx. 100 ft. accessible. Flow 2.5 cfs.
2. Excellent gravel throughout, moderate slope for at least 0.25 mi. width 4-6 ft. 4.0 cfs flow.
3. Discharge 5.0 cfs with moderate slope and excellent gravel.
4. Marginal spawning stream with 1.0 cfs flow and 20 ft. of access.

Outlets

Large with fairly high velocities (ave. 3.0 ft/sec.). Stream is 12 ft. wide with 15-16 cfs discharge; slope moderate. Spawning potential limited due to high velocities and marginal spawning gravel.

Remarks

Lake is bordered by hemlock, cedar and fir.

Water Chemistry

PH: 7.0
Total alkalinity, ppm: 17.1
Total Hardness, ppm: 17.1
Temperature, °F: 46

Biological Data

Aquatic Vegetation: Some unidentified vegetation on bottom, possibly Nitella (?)

Food Organisms Observed: Fish stomachs contained predominantly chi---mad larvae and pupae; stonefly and mayfly nymphs plus beetle larvae were also present.

With only a few fish in the lake, growth was exceptional compared to other brook trout lakes surveyed. Cutthroat planted in 1979 appeared in the catch in 1981 as 8—10-inch fish, but were rapidly fished out. With the high exchange rate of water, emigration out of the lake could also be a problem.

Recreational Access and Use

Access: Knuppenburg is one of the most accessible high lakes in either Packwood or Randle Districts. It is immediately adjacent to Highway 12 and has a pull-out and a developed picnic area.

Use: Heavy.

Future Management

Because of the heavy fishing pressure on Knuppenburg, brown trout may be the best alternative for a sustained fishery. They should be more difficult to catch and might sustain the fishery for a longer period. Browns were planted in 1983, 1987 and 1988 but Knuppenburg needs to be surveyed to determine if these trout are providing a good fishery.

Streams

Water quality data specifically for the streams at White Pass are not available. However, quality for the streams emanating from the area is high. All surface waters issuing from National Forests are designated Class AA (extraordinary) by the State of Washington Department of Ecology (WAC 173-201-070)

Flood Plains and Wetlands

No floodplains exist within the study area. the streams are confined in narrow draws and do not spread out during flood periods.

The south side of Leech Lake and the inlet of Knuppenburg Lake would be classified as wetlands. Riparian vegetation including Alaska yellow cedar (Chamaecyparis lawsonia) provide the vegetative cover. These areas have perennial, standing water. A portion of the Leech Lake wetland has been filled in the past by highway and parking lot construction.

WILDLIFE AND FISH

Habitat in the project area ranges from thick coniferous forests to subalpine, with an array of riparian areas and natural openings such as meadows and talus slopes. Wildlife communities are rich and diverse. A wildlife inventory of White Pass Ski Area and vicinity identified 192 wildlife species that could be seasonal, casual or rare inhabitants of the area.

Individual wildlife species discussed below and elsewhere in the EIS, including threatened, endangered and sensitive species, are the subject of concerns expressed by some members of the public and by various agencies.

Included in particular are: the northern spotted owl, along with effects the project could have on the old-growth forest setting found in the northern end of the project area; the peregrine falcon and the bald eagle; deer and elk because they are important game species (culturally as well as economically to the Yakima Indian Nation); and, mountain goats because they offer an important hunting opportunity and, equally important, they have aesthetic value to those who prefer to watch them.

NORTHERN SPOTTED OWL

The northern spotted owl typically utilizes old-growth stands and mature forests similar to the ones found in the northern portion of the proposed expansion area. However, research has shown that owls generally inhabit areas below 4000 feet. The lowest portion of the project area is approximately 4200 feet, near Knuppenburg Lake. In addition, this terrain has a northerly aspect which further decreases the likelihood of the presence of spotted owls during the winter. The pass vicinity most likely serves as a corridor for interaction between east- and west-side populations, which is important in maintaining genetic diversity.

A report on survey results, completed in July 1987 by Wendell Oliver, Wildlife Consultant, indicated there was no use of the area by spotted owls. That report was in consultation with State and Wenatchee National Forest biologists. Biologists from the Gifford Pinchot National Forest and the State Department of Wildlife who are knowledgeable of the area, agreed that the likelihood of use by or presence of owls was very low. A letter from the Yakima office of the Department of Wildlife (11/23/88) says additional owl surveys may be needed because survey techniques have improved since that survey.

MOUNTAIN GOATS

The Hogback Basin area is mountain goat summer range. Goats are frequently sighted in this area and evidence of use can be observed. Prime summer habitat and known heavy use areas occur away from the project area to the north, south and west. The impact of the existing summer activities that might have already displaced goats to other areas is unknown, but is not felt to be significant based on current use, and sightings of the animals.

Goat population estimates are vague but indicate a small one at best. This population is concentrated in the Goat Rocks Wilderness but is also scattered through other areas in the Gifford Pinchot National Forest and Mount Rainier National Park. The population is thought to be declining, possibly due in part to over-hunting. The Washington Department of Wildlife's 1983—89 objective for the GPNF is to maintain the population at 1970-79 levels, then increase the population by 5 percent per decade to the year 2050.

Winter range, besides being an important factor for determining mountain goat populations, is often the limiting factor controlling them. Winter use in the project area is non-existent or insignificant. It occurs in traditional areas much lower in elevation away from White Pass. The project area has no windswept open ridges, typical of some mountain settings, such as in the

Rocky Mountains, where high elevation and dry snow conditions keep grasses and forbs exposed most of the winter. White Pass typically has wet snow and deep snow packs which bury feed sources.

DEER AND ELK

Roosevelt elk and black-tail deer inhabit the project area for summer range only. The limiting factor overall for deer and elk herds is winter range. The Yakima Indian Nation is concerned with big game impacts in relation to this project although their concerns are not site-specific.

THREATENED AND ENDANGERED ANIMAL SPECIES

One federally listed threatened species, the bald eagle, and one federally listed endangered species, the peregrine falcon, have been sighted in nearby areas.

Forest species being considered for federal listing are the Larch Mountain Salamander, Townsend's big-eared bat, the California wolverine, and the North American lynx.

Species listed by the State of Washington as threatened or sensitive include the northern spotted owl, the Larch Mountain salamander and Townsend's big-eared bat.

PEREGRINE FALCONS

There are no known sightings of these raptors in the project area, though they have been sighted to the south in the Goat Rocks Wilderness. Nesting in the study area is unlikely since snow carries over into the spring nesting season. Suitable nesting habitat consists of large, vertical, open rocky faces that are readily accessible by the birds. Suitable habitat occurs in the Upper Cowlitz River Valley and on the east side of the Cascades. The only possible use of the project area by falcons might be for foraging in the late season or pre-winter, and foraging habitat is not a limiting factor for these birds..

BALD EAGLE

There have been no documented eagle sightings in this area, though they must certainly have flown over. Bald eagles nest in lower elevations than are found in the study area, usually in locations associated with lakes and rivers. Nests exist at nearby Rimrock Reservoir.

Eagles might use the area for foraging in the late summer and fall when nesting is complete and small rodents and mammals are present, but there is no prey base during the majority of the season. This type of habitat is not a limiting factor.

NORTHERN SPOTTED OWL:

See previous section on spotted owls.

LARCH MOUNTAIN SALAMANDER

The Larch Mountain salamander relies on talus slopes composed of small rocks. It has a strong preference for steep (greater than 30 percent) slopes of lava talus, with other specific characteristics. The preferred micro-habitat is a dense canopy cover with sparse ground vegetation.

Until recently, the Columbia River Gorge was thought to be the sole habitat for this species. However, the salamander has also been found in an area near Packwood. This find represents significant range extension for the species and may indicate a distinct population. The Packwood site, at 2970 feet, is higher than any other recorded site in Washington.

The presence of this species in the project area is unlikely, based on research and field reconnaissance work done in 1987.

TOWNSEND'S BIG-EARED BAT

Caves are essential to this species. The primary limiting factor is caused by disturbances of its cave hibernation and roosting habitat. There are no known caves in the project area. If the area is used by the bats for their night foraging, impacts on the species would be minimal.

CALIFORNIA WOLVERINE AND THE NORTH AMERICAN LYNX

Both of these species are frequently found in high elevation forests near timberline. There are no known documented sightings of these predators in or around the project area. If their use of the area were to occur, the primary impacts on them would be from additional human presence in the summer. However, given their wide ranges, this impact would be negligible.

FISHERIES

Resident fisheries occur in nearby Knuppenburg Lake and Leech Lake. Both are stocked fisheries maintained by the Department of Wildlife. Potential threats to these fisheries would be from pollution from sewage disposal and from sedimentation caused by accelerated surface erosion.

VEGETATION

Three basic ecological settings exist in the proposed ski expansion area. [See Figure III-6, Ecotype Map.] The first is the steep, dense timbered slope that parallels the highway west of the White Pass facilities. This plant community is characterized by old-growth western hemlock (Tsuga heterophylla), Engelmann spruce (Picea engelmanii) and Pacific silver fir (Abies amabilis) with understories of western hemlock, Pacific silver fir and Alaska yellow cedar (Chamaecyparis lawsoniana). The herbaceous vegetation consists of western rattlesnake plantain (Goodyera oblongifolia) and various mosses. The shrubs include big huckleberry (Vaccinium membranaceum), western prince's pine (Chimaphila umbellata var. occidentalis), low huckleberry (Vaccinium myrtillus), beargrass (Xerophyllum tenax), dwarf bramble (Rubus lasiocarpa), rusty menziesia (Menziesia ferruginea), Alaska huckleberry (Vaccinium alaskaense), and sidebells pyrola (Pyrola secunda). Many of the more mature trees are over 400 years old. There is a great deal of decadence, with abundant fungal activity. Fires have played a very infrequent role in this ecosystem. Windthrow and snow break/avalanche appear to be the major disturbances. Shallow soil and rock outcrops are common on this steep topography. There are numerous Pacific silver fir snags in this setting. The trees on the upper slope are stunted in height due to the shortened growing season, shallow soil and adverse weather.

The second ecological setting consists of a subalpine setting with atolls of stunted subalpine fir (Abies lasiocarpa), mountain hemlock (Tsuga mertensiana), Alaska yellow cedar and Pacific silver fir. Vegetation includes sedge (Carex), red mountain heath (Phyllodoce empetriformis), Cascade huckleberry (Vaccinium deliciosum), big huckleberry, and smooth woodrush (Lazula hitchcockii). This unique area has been characterized as open glades among clumps of stunted trees. The harshness of the environmental conditions, such as heavy snow accumulation, high winds with blowing ice, re-radiation, insolation, short growing season and snow creep, make tree life a struggle for survival. The groups of trees (atolls) shelter the young seedlings from the harshness. An atoll expands until snow creep or windthrow brings it down. This process of ecological succession is very slow. This ecosystem is a fragile environment.

The third ecological setting along the upper Hogback Ridge consists of a low shrub/forb layer of sedge, red mountain heath, smooth woodrush and grouse whortleberry (Vaccinium scopulorium). Trees on the ridge have scattered clumps of Krumholtz (stunted) subalpine fir and mountain hemlock. Alaska yellow cedar and white-bark pine (Pinus albicaulis) are infrequently present. Growing seasons are very short. This plant community is very sensitive to physical disturbance; it remains evident for a long time due to the vegetation's slow growth.

THREATENED, ENDANGERED AND SENSITIVE PLANT SPECIES

Dr. William W. Barker, Professor of Botany at Central Washington University, conducted a survey in 1987 for sensitive, threatened or endangered plants in the proposed expansion area. The area covered is shown in Figure III-7. His project included a literature search for listed species as well as a field survey of.five general ecological areas: roadside, steep hillside, meadow-ridge, alpine Krumholtz, and "Grand Couloir." A list of plant species found is included as Appendix C. Dr. Barker summarized the results of his survey as follows:

> A thorough survey of the area proposed for the expansion of the White Pass Ski Area was conducted during June and July of 1987. No plants listed as endangered, threatened or sensitive in the June 1987 listing of such plants, published by the Washington Natural Heritage Program, were located in the course of the survey.

TIMBER

The only merchantable timber stands potentially involved in the study area are in the area of Chair Lift 7 and the access road, along the catchline road, and where the parking lot would be expanded. These are old, mature stands of Pacific silver fir and western hemlock. Stand data is limited but are estimated to be typically 18 22 inches in diameter at breast height, 100-240 years old (majority about 120) and an average net volume of 35 thousand board feet per acre.

Most of the timber affected by the upper areas (Hogback Basin) is too small and scattered to yield any significant volume and is considered unmerchantable.

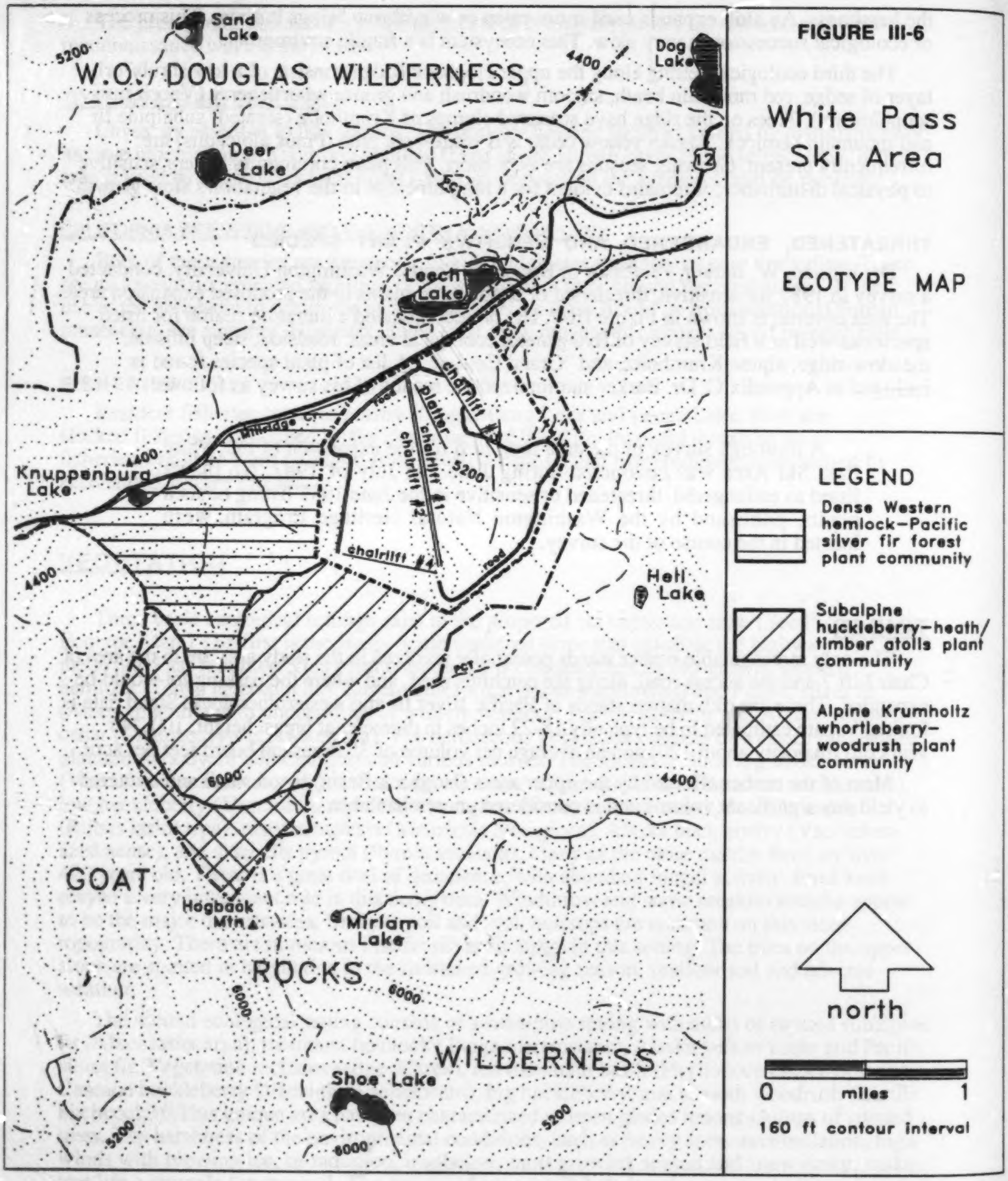


FIGURE III-6

White Pass Ski Area

ECOTYPE MAP

W.O. DOUGLAS WILDERNESS
Sand Lake
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift
Plaster chairlift
chairlift #2
chairlift #4
road
Millridge Cr.
Knuppenburg Lake
Hell Lake
Hogback Mtn
Miriam Lake
GOAT ROCKS WILDERNESS
Shoe Lake
4400
5200
6000
LEGEND
Dense Western hemlock–Pacific silver fir forest plant community
Subalpine huckleberry–heath/timber atolls plant community
Alpine Krumholtz whortleberry–woodrush plant community
north
0 miles 1
160 ft contour interval

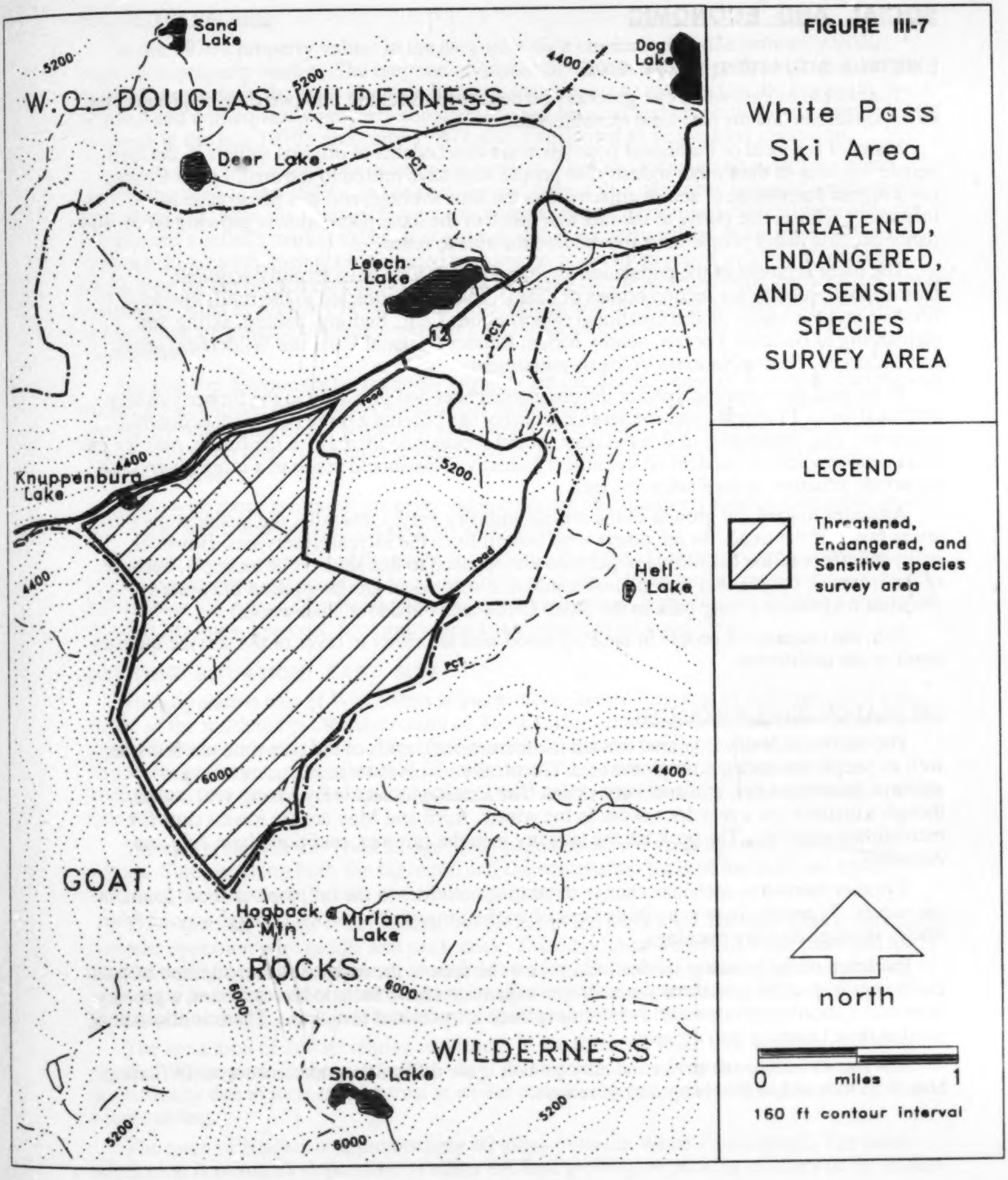


FIGURE III-7

White Pass Ski Area

THREATENED, ENDANGERED, AND SENSITIVE SPECIES SURVEY AREA

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
5200
4400
Dog Lake
Deer Lake
PCT
Leech Lake
12
PCT
road
Knuppenburg Lake
4400
5200
4400
road
Hell Lake
PCT
6000
4400
GOAT
ROCKS
WILDERNESS
Hogback Mtn
Miriam Lake
6000
6000
Shoe Lake
5200
6000
5200
LEGEND
Threatened, Endangered, and Sensitive species survey area
north
0
miles
1
160 ft contour interval

SOCIAL AND ECONOMIC

EXISTING SITUATION: WEST SIDE

The people in Packwood can generally be described as falling into two diverse groups: the local population and the part-time recreationists.

Many of the local or traditional population are descendants of original settlers in the area, people working in the timber industry, or people who have retired to the area. Lewis County has a higher percentage of senior citizens than the state average, and this percentage is increasing. This is due partly to the fact that much of the local population is growing older, and partly because many people have moved into the area to retire.

The other segment of the population are those people who have recently acquired recreational property for second homes or cabins. Many are attracted to the rural, low-key lifestyle and the year-round recreational opportunities (e.g., hunting, fishing, skiing and sightseeing in National Forests, nearby Mount Rainier National Park, the Wilderness areas, and Mount St. Helens National Volcanic monument).

In the past the economic base of the community was tied primarily to the timber industry and local mills. In recent years the service industry has become a more dominant economic influence. The importance of this industry should continue to increase in the future, making the local economy less dependent on the timber industry. This should result in a more diversified economic situation in the Packwood area.

Attitudes toward the growth of the service industry vary. Generally, the business people are in favor of the trend. So are others who benefit from the increased services. However, many members of the traditional population are opposed to this shift . (For example, because of the influx of people that would have resulted, a very vocal group opposed the State's proposal to develop a state park in the Skate Creek area outside of Packwood.)

Still, the majority of people in the Packwood area are either in favor of the service industry trend or are indifferent.

RECREATION SERVICE INDUSTRY:

The service industry is geared toward the recreational needs of the part-time residents, as well as people travelling through the area. It typically involves restaurants, motels, gas stations, grocery stores, and specialty stores. The industry is relatively strong year-round, though a distinct low cycle does occur in the winter. April and May are the lowest time for recreational activities. The peak for the industry is in the summer, traditionally in July and August.

Summer recreation activities change to hunting activities in the fall, then to snow sports in the winter. Typically there is a steady flow of traffic through Packwood on Highway 12 from Friday through Sunday evenings.

Evidence of the growing service industry can be seen in the expansion and addition of local businesses in just the past three years. Major expansions have included a restaurant, a grocery store and a sporting goods store. Additions include a motel and restaurant. There is also talk of another motel coming into the area.

Another indication of service industry growth is the difficulty people encounter in finding houses to rent and in the rising cost of rentals.

PROPERTY VALUES:

In the 1970's property values in the area were on a constant rise, due primarily to the recreation property market. The eruption of Mount St. Helens had a significant impact on the value of property in the area. The area lost its attractiveness to many when the mountain erupted and consequently property supply exceeded demand and property values dropped. Mill closures in the late 1970's and early 1980's also contributed to this market condition.

In the mid-1980's land values began to recover. They are today about what they were during the peak in the 1970's. In the past, buyers were a mix of timber industry workers and retired people. Now the primary buyers are recreationists. The demand currently exceeds the supply and a seller's market exists. It is estimated that property values in the next five years without ski area expansion are expected by some to go up by as much as 25 to 50 percent, depending on the property location. The area impacted by the increase in property values can be roughly defined as property between the Cora Bridge and the Forest boundary to the east. The prime areas are downtown Packwood and tract developments known as High Valley and Timberline.

Fueling the demand for recreational property are the development of Mount St. Helens as a national Monument; recreational pursuits mentioned previously; investment opportunities (primarily with commercial property); and, people who bought lots telling friends who then bought lots, who then.... Another added factor is the talk of the future development of a state park in the area.

Even with these increases, property value costs are still relatively modest compared to other recreation areas, and demand is expected to continue.

Opinions vary, but talk of the proposed expansion of the ski area appears to have had little impact on property values or the local economy as of yet. However, businesses have used the White Pass Ski Area's current operation as a marketing tool, featuring the ski area's reputation of short lift lines, low cost, proximity, and consistently good conditions.

EXISTING SITUATION: EAST SIDE

The population east of White Pass is much more diverse than that of the Packwood area. Some of the residents in the community of Trout Lodge commute to the town of Naches or the city of Yakima to work. Most of the local residents in the community which lies within the Tieton River canyon, approximately 22 miles from the pass summit, operate service businesses: two motels with trailer hookups, two cafes, a sports shop, and a gas station with a tow truck.

The sports shop in the Trout Lodge area opened about ten years ago and provided ski rentals. Since opening both the ski rental and the sports shop parts of the business have increased their stocks of nordic and alpine equipment.

There are four resorts under special use permit in the Rimrock Lake area. One is currently a summer operation with saddle and pack stock. The other three lie on Rimrock Lake and, prior to the development of the ski area, closed down after elk hunting season. For a number of years only two of the resorts remained open all winter, but winter use by skiers and snowmobilers has made it profitable for the third resort to operate on weekends.

The are a total of 268 recreation residences in the Rimrock Lake area within a half-hour drive of White pass. In the past twenty-eight years winter use of the cabins has grown dramatically due to increased interest in winter activities, from snowmobiling to downhill and nordic skiing.

The town of Naches is approximately 40 miles from the White Pass summit. The local population is primarily dependent on either the fruit growing or packing industry or the timber industry, with one locally-owned sawmill and several logging operators. Residents who do not work in these fields commute to jobs in Yakima.

Two service businesses have opened in Naches in the past two years, a sport shop with ski rentals and a pizza parlor. Both of these rely heavily for their trade on recreationists using the White Pass Ski Area.

The general opinion of the local population in the Trout Lodge-Naches area is in favor of the expansion of the ski area since increased use there would greatly benefit the various service businesses in these communities.

The city of Yakima is about 55 miles from White pass and has grown from an a community oriented to agriculture and timber to an urban center with manufacturing and associated industries. Property values in that locality have remained static or dropped in the 1980's.

SKI AREA

EMPLOYMENT

White Pass Company has an annual payroll of about $700,000, which includes 18-20 year-round positions. Employment also includes 75 seasonal full-time positions and 60 seasonal part-time positions. About 40% of the employees live on the east side and 60% live in the Packwood/Randle areas.

REVENUE

Current Revenue for White Pass Company is about $2,000,000. Table III-6 shows the Company's revenue in average daily expenditure, by type of income and by skier type.

TABLE III-6, SKIER'S AVERAGE DAILY EXPENDITURE

	Alpine Skier	Nordic Skier
Daily Ticket	$19.00	$5.00
Ave. Daily Ticket*	12.23	4.43
Ski School	0.62	0.54
Food (Day Lodge)	2.59	2.59
Groceries & Gas	1.85	1.85
Ski Rental	1.10	1.10
Retail Sales (Ski & Gift Shops)	1.20	1.20
Day Care†	0.07	0.07
Skier's Average Daily Expenditure	$19.66	$11.78

(*Average Daily Ticket less than full day because of 1/2 day passes, group rates and gratuities.

†First year for day-care. This should grow.)

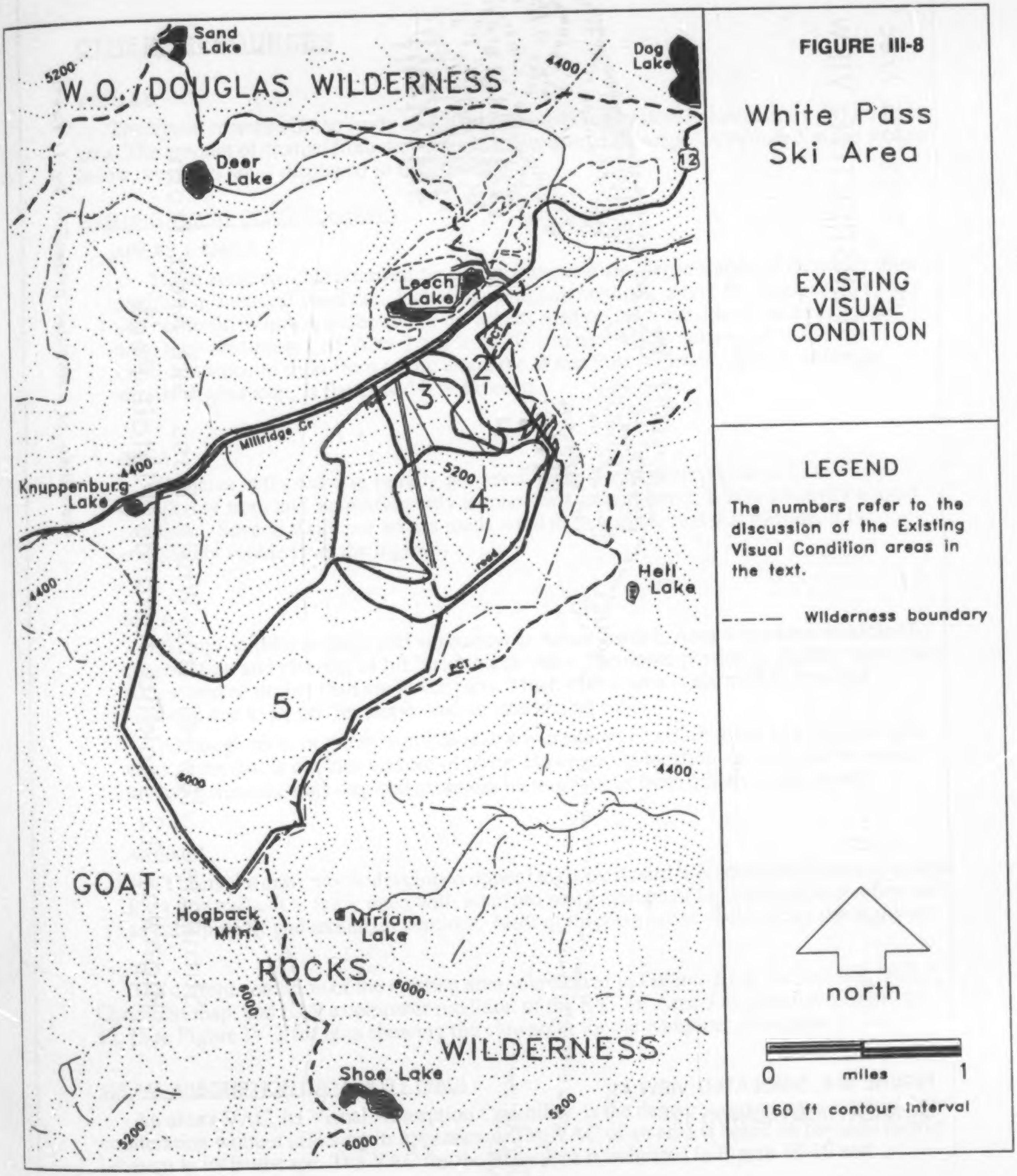


FIGURE III-8

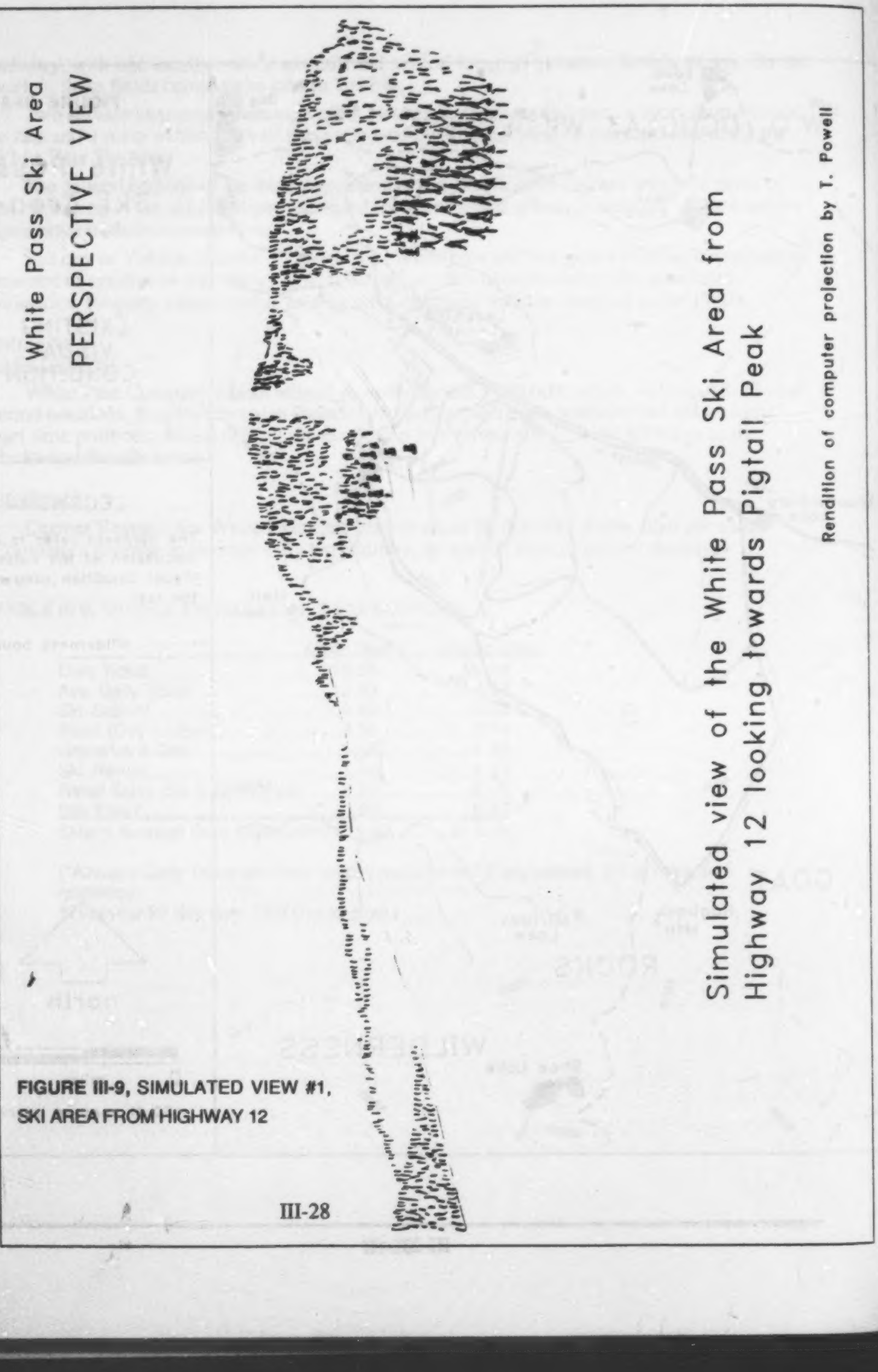
White Pass Ski Area

EXISTING VISUAL CONDITION

LEGEND

The numbers refer to the discussion of the Existing Visual Condition areas in the text.

Sand Lake
W.O. DOUGLAS WILDERNESS
Dog Lake
5200
4400
12
Deer Lake
Leech Lake
PCT
2
3
Millridge Cr
1
4
5200
road
4400
Knuppenburg Lake
Hell Lake
4400
PCT
5
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
Wilderness boundary
north
0
miles
1
160 ft contour interval


White Pass Ski Area
PERSPECTIVE VIEW

Simulated view of the White Pass Ski Area from Highway 12 looking towards Pigtail Peak

Rendition of computer projection by T. Powell

FIGURE III-9, SIMULATED VIEW #1, SKI AREA FROM HIGHWAY 12

OTHER RESOURCES

VISUAL

The visual resource in the study area has been modified by development in the White Pass area. The amount of change from the "naturally appearing landscape" is included in the sections below, keyed to areas displayed in Figure III-8.

EXISTING VISUAL CONDITION (EVC)

AREAS 1 AND 2

These areas are characterized by continuous, uniform, dense stands of high-elevation conifers in a natural condition, including mountain hemlock, silver fir, Englemann spruce and noble fir. With the exception of the access road on the west side of the existing ski area, they are unchanged. Area 1 has from 20% to near 100% slopes and is therefore highly exposed to sight from traffic along the White Pass highway. Area 2, although similar in character, is flatter and less exposed.

AREA 3

This area is the existing heavily groomed lower slopes of the ski area. Essentially denuded of trees and supporting only a grass-forb ground cover, it is in a heavily altered condition. Several trails and access roads wind their ways across this hillside. It is completely visible from the highway.

AREA 4

Though similar in slope and vegetation to Areas 1 and 2, Area 4 has been modified by construction and clearing of lift lines and ski runs. The upper portion is slightly more open, with scattered timber than are lower parts. Much of this area is not visible from the highway due to its gentler slopes and an intervening ridge.

Although most of the runs in this area are irregular, Chair lift 4 lies in a very straight, vertical cut that is obvious and out of place. However, its location and orientation make it invisible from the highway and generally inconspicuous from other vantage points.

AREA 5

This is the currently undeveloped upper Hogback Basin. It is completely natural except for a few trails. It is fairly open with scattered small clumps of high-elevation conifers such as subalpine fir and mountain hemlock. Most of this area is not visible from the highway

The current condition of the existing area is indicated in Figures III-8, the Existing Visual Condition map, and III-9 a computer rendition of the EVC of Area 3 as seen from Highway 12. [See Figure IV-2 for map showing the viewpoint for the computer simulation.]

VISUAL ABSORPTION CAPABILITY (VAC)

An area's VAC, its Visual Absorption Capability, is the degree it can accommodate change or alteration without affecting its appearance. The VAC of an area is based on physical factors inherent in its landscape. The VAC for the study area is indicated in Figure III-10 and described below.

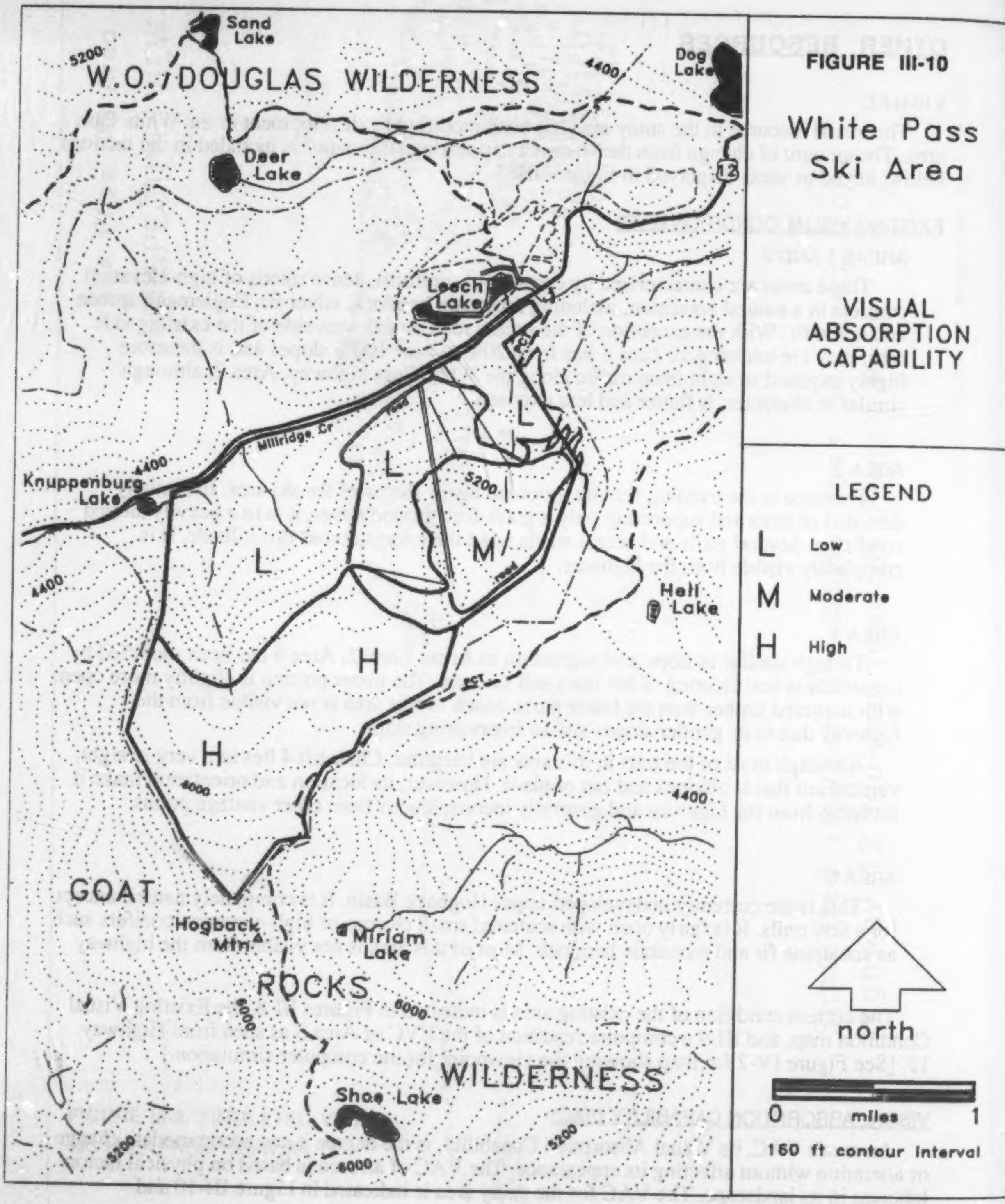


FIGURE III-10

White Pass Ski Area

VISUAL ABSORPTION CAPABILITY

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
Deer Lake
12
Leech Lake
PCT
Millridge Cr
1500
4400
Knuppenburg Lake
L
L
M
L
5200
1004
4400
Hell Lake
H
PCT
H
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
L Low
M Moderate
H High
north
0 miles 1
160 ft contour interval

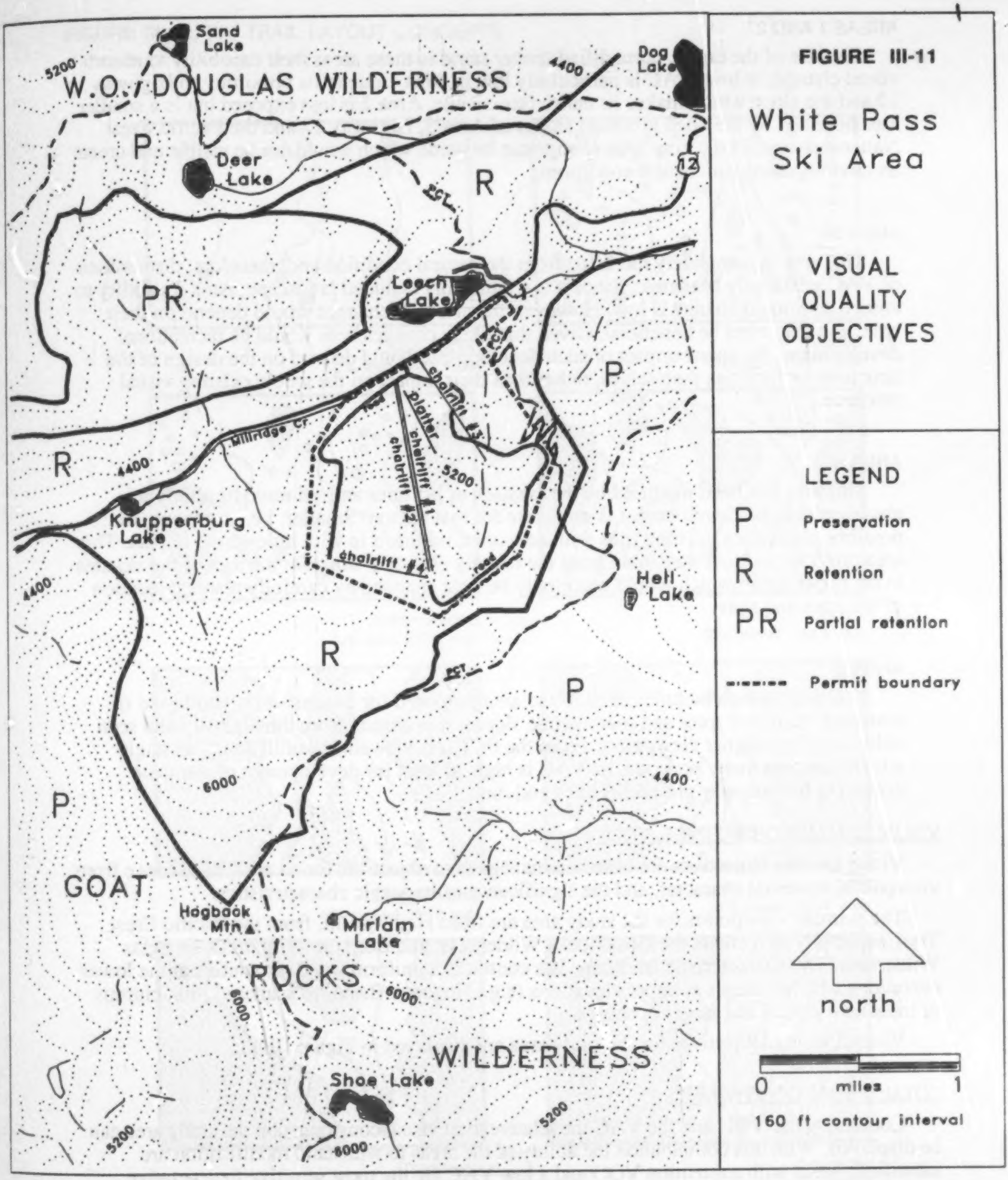


FIGURE III-11

White Pass Ski Area

VISUAL QUALITY OBJECTIVES

LEGEND
P Preservation
R Retention
PR Partial retention
Permit boundary
north
0 miles 1
160 ft contour interval
Sand Lake
Dog Lake
W.O. DOUGLAS WILDERNESS
5200
4400
P
Deer Lake
R
PCT
12
PR
Leech Lake
PCT
P
chairlift #3
platter
road
chairlift #2
chairlift #1
5200
Millridge Cr.
R
4400
Knuppenburg Lake
chairlift #4
road
Hell Lake
4400
R
PCT
P
6000
4400
P
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000

AREAS 1 AND 2

Because of the dense, unmodified timber stand in these areas their capability to absorb visual changes is low. VAC is particularly low in Area 1 due to its proximity to Highway 12 and the slope which makes its entire face visible. Area 2 is less exposed but is a smaller area bounded by the open groomed slopes of Area 3, Highway 12 and the Pacific Crest National Scenic Trail. Very little change can be made which would not be visible and create an obvious change in natural conditions.

AREA 3

This area is completely modified from the natural condition and, therefore, discussions of VAC are largely academic. Since it is a uniformly denuded landscape, Area 3's ability to absorb additional change is low. However, the effect of changes would depend on their type, and may even be beneficial. Given that likely changes here would be recreational development, the visual impact of such development would depend on the design of the structures or facilities themselves, rather than their impact on the whole existing visual resource.

AREA 4

This area has been modified by the creation of lift lines and ski runs. Its ability to absorb additional development is moderate for that reason. Smaller, i.e., narrower, runs, possibly connecting existing runs with new ones, might fit in with little visual impact. This area provides a visual transition, from the heavily groomed slopes at the foot of the ski area to the upper Basin which would potentially be little changed by carefully planned location of lift lines and runs.

AREA 5

This area, which includes most of the area proposed for expansion, is composed of scattered clumps of trees and more gentle slopes. It is unseen from the highway and seen obliquely from higher viewpoints. From the PCT it is viewed downhill and at an angle which obscures many portions. Its VAC is high, at least for development of the scale necessary for properly placed lift lines and runs.

VISUAL QUALITY OBJECTIVES (VQO)

Visual Quality Objectives are based on management objectives for an area, its distance from viewpoints, its visual character, and the significance of its scenic characteristics.

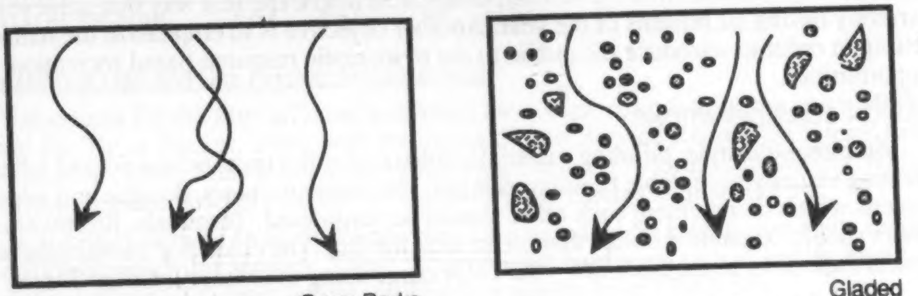
The primary viewpoints for the study area are from Highway 12, from the Pacific Crest Trail, especially as it enters the Goat Rocks Wilderness, and from the William O. Douglas Wilderness. The characteristic landscape is a continuous uniform stand of conifers at the lower elevations which changes at upper elevations (e.g., Hogback Basin) to scattered, thin clumps of trees with glades and larger openings.

Visual Quality Objectives for the study area are displayed in Figure III-11.

TOTAL VISUAL CONSTRAINTS

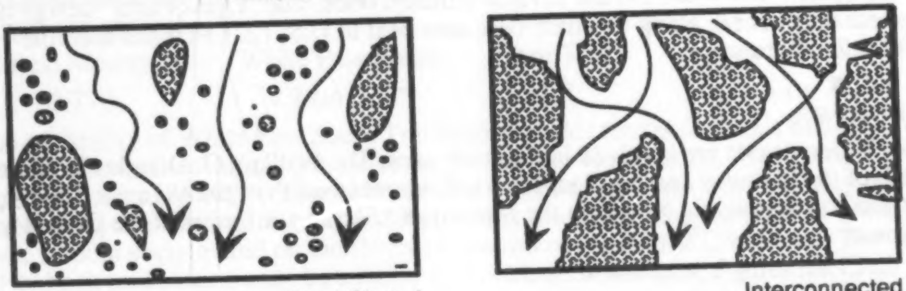
Combining the VQO and the VAC the relative total visual constraints on the study area can be displayed. With this combination the ability of the areas to withstand modification are identified. Areas with a retention VQO and a low VAC are the most sensitive to vegetative modification.

FIGURE III–12, SKI TRAIL LAYOUT CONCEPTS



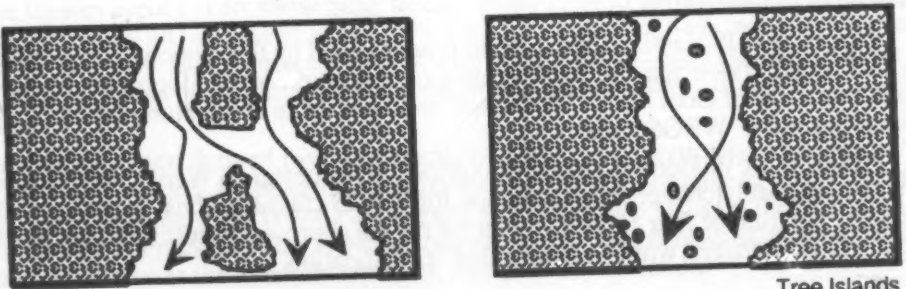
Open Parks
100% open, 500 ft. wide

Gladed
90% open, 300 ft. wide



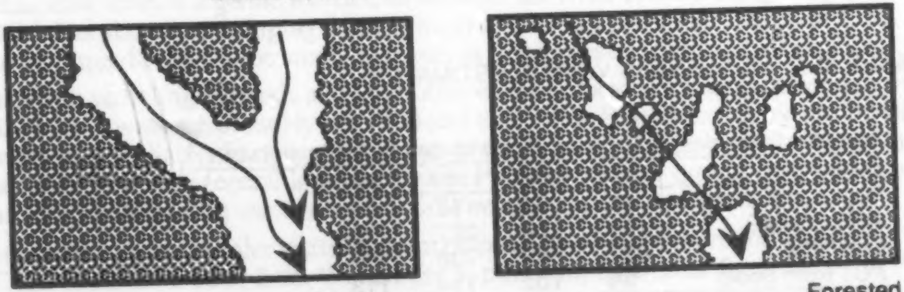
Semi-Gladed
70% open, 300 ft. wide

Interconnected
50% cleared, 500 ft. wide



Large Islands
40% cleared, 180 ft. wide

Tree Islands
30% cleared, 150 ft. wide



Traditional
20% cleared, 120 ft. wide

Forested
Natural Openings

OBJECTIVES

The main visual objective for design consideration is to protect and enhance the natural landscape while accommodating skiing and related activities. This can be done by blending constructed alterations into the natural, established landscape in a way that achieves harmony during all seasons of the year. Another objective is to emphasize the natural setting in order to introduce the public to the more rustic resource-based recreation opportunities.

DESIGN CONSIDERATIONS

Architectural style, building materials, color and siting must be considered when creating visually acceptable building designs. Harmonious colors, designs and vegetative screens which complement each other should be considered. Terminals, lift towers and chairs should be painted colors that blend with the site. The color that blends best with the area is dark olive in the 5GY/5/4—5GY/4/4 range using the Munsell Color Charts.

Ski trail layout concepts can provide a wide range of visual results. [See Figure III-12.] Existing runs at White Pass use several different ones. The "Open Parks" design is immediately visible along the main base area next to U.S. 12. Lift 4 has used the "Traditional" concept.

WILDERNESS

Two Wildernesses are involved in the study area, The William O. Douglas Wilderness to the north of the highway and the Goat Rocks Wilderness south of the ski area. The majority of Wilderness impacts would be within the Miriam and Shoe Lake basins of the Goat Rocks Wilderness.

WILDERNESS RECREATION OPPORTUNITY SPECTRUM (WROS) CLASSIFICATION

Present WROS classification directions are defined by the Regional supplement (#81) to the Forest Service manual, 2320. Present classification of the Hogback area between the north boundary of Goat Rocks Wilderness and Shoe Lake Basin along the PCT is within "Semi-primitive" WROS zone.

Present draft Wilderness standards outlined in the unsigned Wenatchee National Forest Plan will probably change forest direction for WROS classifications. In the event that a broader spectrum of four classes is selected for the approved Forest Plan, the Hogback Area will be managed within a "Transition" classification.

VISITOR USE

TABLE III-7, WILDERNESS VISITOR ESTIMATES

Summer Use Estimates on Hogback Ridge/Miriam Basin (in # of visits)

Entry Point	1985	1986	1987	1988
Round Mt/other	48	51	57	56
White Pass S.	191	204	227	225
Chair Trail	622	663	738	731
PCT from South	96	102	114	113
TOTAL for Area	956	1020	1135	1125

Winter Use Estimates (in # of visits)

Entry Point	1985	1986	1987	1988
Chair Trail	634	615	759	1194
Other	33	32	39	63
TOTAL for Area	667	647	798	1257

Discussion of Use and Use Figures, Hogback Area

Use counts for the four affected trailheads have been recorded for the years 1985, 86, 87 and 88. These figures, along with the annual Forest Service Recreation Information Management (RIM) statistics and the White Pass chair use records (supplied by White Pass Company) generate useful records. A review of these figures is qualified by:

1. Use statistics derived from trailhead counts are based on 50 monitoring visits recorded during summer use seasons. These 50 counts are hardly enough to justify broad statistical analysis either across trailheads or across years (1985-88).
2. Trailhead counts generate the following visitor use estimates per day for the high-use season.

Round Mountain	White Pass South	Chair Trail	Leech Lake Trailhead
0.777	4.9 (to 9.9)*	7.5	14.4 (to 23.3)*

* The variability of White Pass South Trailhead statistics results from this trailhead often being an overflow camping area for the White pass Horse camp. This number is further skewed due to records collected on several extreme high-use days. Working toward averages, this use is estimated at 4.9 visits per monitored day. Horses (or horse tracks) are seldom encountered on the Hogback portion of the Pacific Crest Trail. The Hogback trail sidecut may be a factor in this trend. In addition, figures for Chair Trail are difficult to determine from trailhead counts.

3. Use figures across years show basic trends. From 1984 to 1988 White Pass chair lift records show an increase in use of 18% for summer and an 88% increase for winter. RIM data show a 27% increase over this time for summer use. Trailhead monitor counts, because of several.individual, extremely high-use days, do not reflect useable data.
4. The user/day ratio derived from use counts compares very favorably with White Pass Company's records for chair lift use. Comparing the yearly trailhead counts (averaged to 1986) with the 1986 White Pass figures gives chair use visits on the PCT at 663 compared to Forest Service Trailhead counts at 675. This comparison seems to confirm both estimates as the numbers represent less than 2% deviation.
5. Year-to-year trends are indicated by both Rim statistics and chair lift counts. White Pass chair data reflects a gentle increase in summer use from 1984 to a slight dip in 1988. RIM data show use dropping from 1984 to 1985 and increasing sharply to 1988. The general trend seems to be small increases in Wilderness use in summer months.

Considering sampling methods and field observations, it appears that narrow analysis of RIM use counts are probably not valid and that White Pass chair counts can be taken as much more reliable. In any case, year-to-year use is influenced by a number of factors separate from any general long-use trends. Pleasant weather during early summer months can stimulate use while early fall fire closures can restrict it.

6. An estimate of Shoe Lake visits by point of entry is: 65% (or more) of users enter by the Chair Trail, 20% enter from White Pass S. trailhead, 10% enter from the south PCT, and 5% enter from other sources.

LIMITS OF ACCEPTABLE CHANGE (LAC)

LAC INDICATORS

Because Shoe Lake Basin is closed to campfires and camping the improvements in site conditions there during the period 1974—1989 do no reflect use trends. District trail photo points established in 1986 have not been monitored, but visual inspection does not reveal noticeable trends in trail tread or other measurable physical impacts. The primary use indicator monitored within this area is the social impact represented by "encounters."

Monitoring trips in this area indicate encounters exceed the ten group standard in less than 20% of the high-use season days. Emphasis on monitoring has been directed toward portal counts and these numbers do not constitute enough samples for a valid statistical conclusion. However, Wilderness Ranger impressions of past visits for the 1984-88 period confirms the above conclusion.

SHOE LAKE ISSUES

Shoe Lake presents the most intensely used and managed Wilderness lake on the Naches Ranger District. It is within the 1964 legislated Goat Rocks Wilderness but was managed before then as designated Wild Area.

Records regarding recreation in Shoe Lake or conditions there do not precede the 1940's. Kenneth McCall ran sheep in this general area as early as 1916. Observations of the returning timber stands within Shoe Basin leave little doubt that this was a forested basin within the last 150 years. Documentation of similar sites (such as Lake Basin) includes records of complete basin burning by sheep herders. Lake Basin was burned after the turn of the century and today there is no trace of charred stumps or logs. Shoe Basin's recent history is probably similar.

Interviews indicate that by the late 1940's Shoe Lake Basin was heavily impacted by recreationists. This use was associated with the Pacific Crest Trail. The poor fish habitat at Shoe Lake indicates it was not a popular fishing spot within recent memory. Impacts during the 1940's and through the 1950's were primarily the result of very large horse user groups. Local residents remember visiting Shoe Lake in 1947 with more than 35 riders accompanied by support pack animals. This "expedition" type of outfitted recreation was accepted as necessary to reach the deep backcountry when the nearest roads were often dozens of miles away.

The 1964 Wilderness classification found Shoe Lake little different from its condition in 1950. Though no monitoring exists, recreationists remember it as being "browned out" in the flatter areas of the "instep." This condition persisted into the 1970's, no doubt contributed to by increased national popularity of backpacking, increased public interest in the Pacific Crest National Scenic Trail, and the increased access from the White Pass highway.

In response to more stringent Wilderness standards Shoe Lake was closed to camping and campfires around 1972. During this period Goat Rocks was managed with a Wilderness Permit. Voluntary compliance was relied on for both Permit requirements and lake closure. In 1979 the Youth Conservation Corps program, working out of the Clear Lake camp and supervised by Wilderness Ranger Susan McGraff, completed an extensive lake shore rehabilitation at Shoe Lake. Areas were spaded, seed was collected and dispersed, plugs were transplanted, and jute netting was spread to protect bare areas. Rocks were placed to discourage use and define rehabilitation areas.

Enforcement of the lake closure was hampered during this time by both the wording of the Forest closure order and law enforcement emphasis. With the withdrawal of the Wilderness permit system in 1981, public contacts were decreased. The threat of losing valuable revegetative work increased Wilderness managers' emphasis on order compliance around the lake shore and was rewritten to include the "Basin" (approximately 265 acres). The first Notice of Violation (NOV) written for a Shoe Lake camping violation was issued some time in the early 1980's.

The second revegetation project was completed at Shoe Lake in 1986. Under the direction of Wendy Asplin, volunteers rehabilitated a number of sites. Areas were stringed off, seed collected and re-spread, ground loosened, plugs transplanted, and fertilizer applied. And emphasis on law enforcement continued. The toilet was removed from Shoe Lake around 1970 and horse hitch racks were removed with the 1986 rehabilitation project because they contributed to concentrated impacts.

In 1987 the PCT was moved away from Shoe Lake and the heavily impacted abandoned sections were replaced with a new standard grade lake trail. This new PCT location offered trail users new vistas of Shoe Basin and the alpine Goat Rocks. Additional trail efforts include removing the Shoe Lake access trail from maps and encouraging PCT travel by signing. Public comments on this section of the trail have been favorable and the project has played a major part in lake rehabilitation.

Informal monitoring of Shoe Lake between 1979 and 1986 seemed to indicate the lake shore was making a comeback. However, in the summer following the latest revegetation effort numerous comments were heard regarding the return of vegetation. It is the impression of the Wilderness Coordinator that of the four factors contributing to successful rehabilitation of the lake shore, enforcement of the closure was the primary one. Trail relocation was second, time was third, and the actual projects were of limited effect. However, the education and information dispensed through the project's activity was instrumental in gaining public support for the closure and respect for this type of project. Though enforcement and time may contribute more to the ground, the public appeared to be very appreciative of physical improvement projects.

Present plans to continue rehabilitation at Shoe Lake are centered around continued enforcement and annual maintenance of revegetative plots. Other management efforts include continued coordination with the Washington Department of Wildlife (DOW) to stop fish planting there. The lake was stocked only intermittently from 1960 to 1984. It offers a very poor fish habitat with no hiding cover and annual water inversions. Wilderness concerns which result in discouraging fish planting include fish trails, impacted fish spots and increased use. The DOW has been cooperative with the goals of this program. No concentrated project is planned until after 1995. While the lake shore revegetation conditions are improving and continued monitoring will encourage this trend, there are no plans to remove the lake basin fire and camping closure. These restrictions were instituted in response to heavy use and physical damage caused by easy access and the attractiveness of the basin. As these causes would not be changed by improved sites around the lake, the closure will probably continue after rehabilitation.

CHAIR LIFT IMPACTS TO THE HOGBACK AREA

Chair Lift contributions to Goat Rocks use is not a known quantity. No doubt user patterns at Shoe Lake would be different without the easy access provided by the lift; it eliminates 3.3 trail miles and 1200 vertical feet from the White Pass hike to Shoe Lake. The chair ride is a special experience in itself and contributes to a very desirable day hike with open views, easy grade and an attractive destination.

Social impacts along the PCT between the chair lift trail and Shoe Lake are a separate issue from physical impacts. If 20 % of the chair lift riders use the PCT and if these numbers represent 65%, plus, of the total use within this area, then separate percentages of increased use created by the chair should be generated for day hikers and overnighters.

If an average for all users could be estimated (by guards with long-term familiarity with the area), it would be that more than 35% of present use on the Hogback is "generated" by the chair lift operation, separate from use originating from the White Pass trailhead.

Physical impacts at Shoe Lake and along the PCT can be inferred from use and ratios described above. Guards have the impression that chair lift users do not contribute physical impacts proportionally in excess of their numbers. Overnight visitors within Shoe Lake Basin (illegal) tend to disperse to margin areas to avoid confrontations. The majority of lunching day visitors tend to group at the point of the peninsula, making that area hard to revegetate. Sites identified as hardened picnic sites do not exceed Forest Service standards for physical impacts and were intentionally not treated in 1979 and 1986.

It is estimated that a larger proportion of day hikers than touring backpackers utilize the chair, though of course some backpackers do prefer to use the chair simply because of the weight they carry. Most long distance backpackers approach White Pass from the south and do not include the chair lift ride in their plans. This is the result of many factors, including cost and an ethic of "walking every linear foot of the trail." Guards issuing Notices of Violation at Shoe Lake for camping, have no impression that the violating campers used or did not use the lift.

Operation of White Pass chair lift alters use and management in nearby Wilderness. Use affects Shoe Lake Basin and the Pacific Crest Trail in the Hogback area. Impacts are both physical and social. To date, effects on Wilderness associated with operation of the chair lift have been manageable and within acceptable limits.

CULTURAL RESOURCES

FIELD SURVEY

Two archaeological reconnaissance surveys by Jacqueline M. Cook and Guy F. Moura have not located any historic or archaeological sites in the area proposed for expansion. Their project included a literature search. In November, 1986, corridors for two proposed lifts, the mid-mountain warming hut location and the Knuppenburg Lake area were surveyed. In July, 1987, that field survey was supplemented to comply with the Cultural Resources Sample Design for the Wenatchee National Forest (Carter, 1983) and with specific suggestions of the Wenatchee Forest Archaeologist (Carter, 1987). [See Figure III–13 for the survey area.]

CONCLUSIONS

Cook and Moura reported the following conclusions:

> No archaeological sites were located in the project area. This does not negate the possibility of their existence. It does indicate that if sites do occur they are indeed not in abundance.
>
> Uebelacker (1980) states that there are indeed sites occurring in what he terms as the "crestal uplands" of the Naches Basin, however, this appears to be speculation since he gives no locational data for these sites. Rick McClure, of the Gifford Pinchot National Forest, has recorded several sites in the Goat Rock region (personal communication, 1986). This data is currently in the process of write up. Rice (1969) also notes a source of opaque obsidian on Snowy Mt. in the Goat Rocks. The Goat Rocks

Wilderness area is adjacent to and south of this project area. However, these sites are approximately ten miles to the south, ten miles of extremely rugged country, it might be added.

It is reasonable to assume the project area was utilized in the normal course of the seasonal round cycle in both pre-historic and historic times. The area abounds with flora such as huckleberries and mosses, and fauna such as mountain goats, elk and deer. Also, McClure is asserting there is an obsidian source for tool production. At this point in time, there is no physical evidence in the project area to confirm usage.

Cook and Moura recognize that the South Central Cascades of Washington have "received less archaeological attention than other comparatively-sized areas in the state." They give the following overview statement:

> The settlement and subsistence pattern of the Sanpoil and Nespelem, based on Vern Ray's ethnographic work (1933), is the major framework for both archaeologic and ethnographic interpretations throughout the Columbia River Basin (Uebelacker, 1980).
>
> This ethnographic pattern refers to a seasonal exploitative subsistence pattern. Briefly, winters were spent along the rivers in either semi-subterranean pit houses or in mat lodges. Early spring would allow small groups to move to temporary sites, gathering early root crops and small game and shellfish. In early summer, the fishing locations would be occupied. Anadromous fish are present in the Columbia River from May until November. Between the summer and the fall salmon runs, various berry crops would be harvested in the high mountains by the women. In the fall and early winter, large game hunting would take place in the mountains.
>
> Distribution of the ethnographic tribal groups in the general vicinity of the project area would include the Yakimas on the east side of the Cascades and the Taidnapam on the west side of the mountains. Schuster (1975) reports, "The home of people known aboriginally as Yakima consisted of the territory drained by the river of that name, from the tributaries rising in the Wenatchee Mountains on the north to the Simcoe Mountains and Horse Heaven Hills on the south, and from the summit of the Cascades on the west to the territories of the Columbia-Sinkiuse and Wanapams along the Columbia on the east."
>
> This ethnographic pattern refers to not only an exploitative subsistence pattern but also to a network of established social relationships through intermarriage with Wenatchi, Wishram, Skin, Klickitat, Walla Walla, Umatilla, Wayam-Tenino, Nez Perce, Palous, Spokane, Wanapam, Columbia, and Coast Salish such as the Snoqualmie. Co-utilization of resources such as fishing sites and root and berry grounds further strengthened intergroup activities and allowed a great deal of movement throughout the region (Jermann, 1976).
>
> Taidnapam is a linguistic designation for Sahaptin speakers living west of the Cascade divide and who were found principally along the upper Cowlitz and Lewis Rivers. The Taidnapam were Cowlitz in culture and ecological adaptation while speaking an interior language (Jermann, 1976). While the Taidnapam also employed a seasonal subsistence pattern similar to the Yakimas, major differences would include year-round hunting and occupying cedar plank houses most of the year.

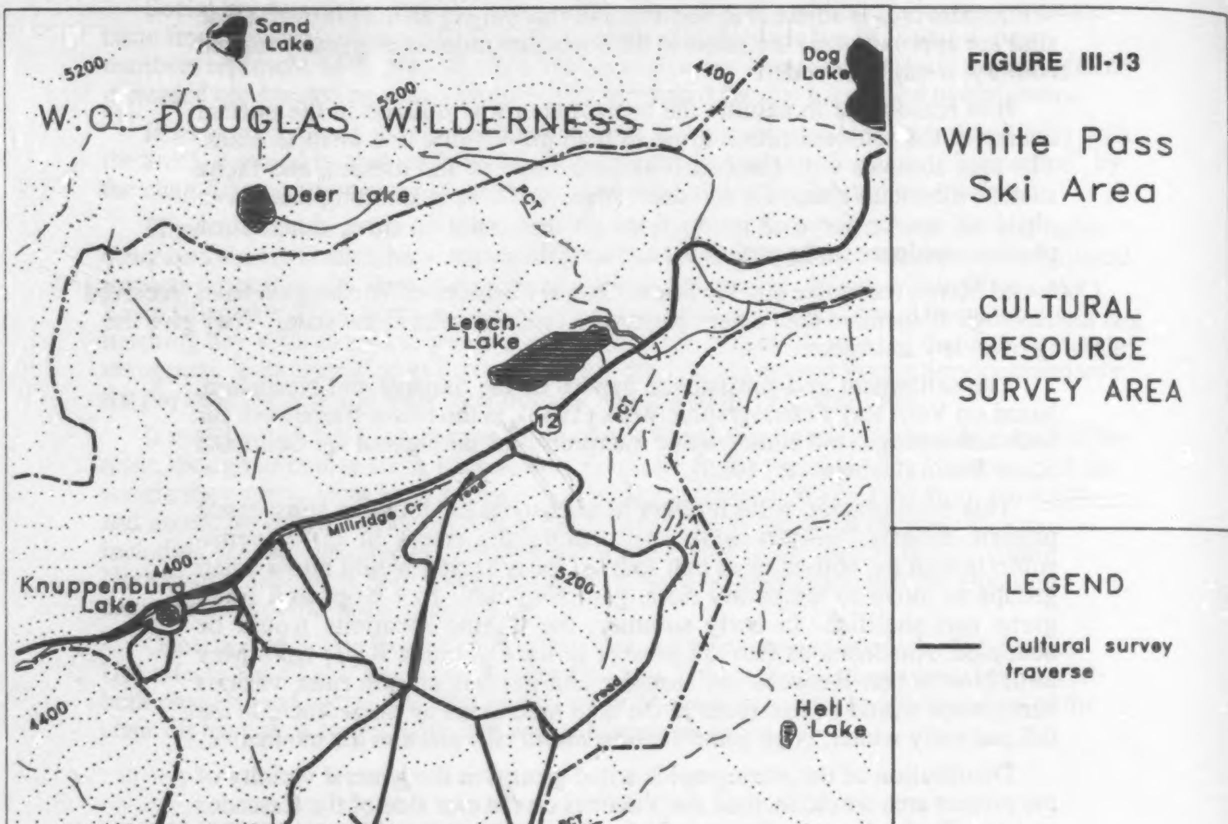


FIGURE III-13

White Pass Ski Area

CULTURAL RESOURCE SURVEY AREA

Sand Lake
5200
Dog Lake
4400
5200
W.O. DOUGLAS WILDERNESS
Deer Lake
PCT
Leech Lake
12
PCT
Millridge Cr
road
4400
Knuppenburg Lake
5200
4400
road
Hell Lake
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Cultural survey traverse
north
0
miles
1
160 ft contour interval

INDIAN NATION CONCERNS

In "A Cultural Resource Overview: Prehistory and Ethnography, Wenatchee National Forest," 1986, Jan L. Hollenbeck and Susan L. Carter noted:

> For the American Indian there [are] no sharp divisions between religion and daily life. The traditional resources—fish, game, berries and roots—played a vital role in the religious beliefs and ceremonies. naming ceremonies, births, weddings and funerals all included traditional foods in the associated feasts and gift giving. These resources were also an integral part of the annual first foods feasts that heralded the first appearances of the food resources in the spring....
>
> Religious traditions continue to be a part of contemporary American Indian lifeways. Traditional resources, including roots berries, fish, game and medicinal plants, play an integral role in the first foods, feasts and other ceremonies. They are collected from many of the same localities as they were formerly, although the methods of collection may have changed....The Forest remains an important component of these ceremonies, rituals and religious beliefs.

The Yakima Indian Nation has expressed concern about the expansion of White Pass Ski Area into Hogback Basin. Technically, the Hogback Basin Area, being west of the Cascade Crest, is outside of the lands ceded to the Yakima Indians in the 1855 treaty with them. It is within the traditional territory of the Taidnapum, or upper Cowlitz, tribes. Use of the Goat Rocks area by the Taidnapum is well documented by Jacobs (1934). Traditional use of the general area by the Yakima as well as the Taidnapum and is recognized, however, though present use is minimal.

Yakima Indian tribal members have said that there are burial sites in the Hogback Basin and that the Basin was a retreat area for Chief Kamiakin during the Yakima Indian War. Further conversations indicated the Kamiakin Band probably used the general area from the Goat Rocks north—and may have included Hogback Basin. They have also indicated in general terms that all of the mountains surrounding White Pass were used for burial grounds and there are bones and other evidence of historical occupation throughout the area.

The Yakima Indian Nation expressed the following concerns in a letter signed by Caroll Palmer, Deputy Director, Natural Resources, on November 21, 1988:

> Within a 10-mile radius of the project there are numerous areas of cultural and/or spiritual importance to the Yakima people. The proposed project area within the Hogback Basin itself is referred to as "Kamiakin's Place" by many Yakima tribal elders. This area has long been used as a traditional summering place and was particularly important to Kamiakin's band as a refuge during the Yakima Indian War. We have made no previous mention of the unique cultural importance of this area as we believed it to be adequately protected by Wilderness Act standards.
>
> The area affected by the proposed project would also adversely impact big game animals and their habitats. The Yakima Indian nation has a treaty-guaranteed right to ensure adequate habitat within ceded area and at all usual and accustomed places. To knowingly diminish this right constitutes an illegal "taking" and should be discouraged.
>
> The wooded habitats within the affected area are largely high elevation old-growth conifer stands. These rare habitats are declining in Pacific Northwest forests and further alteration and fragmentation for strictly

recreational pursuits should be discouraged. A large group of old-growth dependent species, such as northern spotted owl, may be affected by such action.

LAND USE AND REGULATIONS

The study area is entirely National Forest System Land. The only private land in the vicinity is 30 acres of patented mining claims owned by Burton Lehman. Road and water transmission special use permits associated with these claims are the only other permits in the area

Management of the National Forest land is currently directed by the Tieton (Naches) Ranger District Interim Land Management Plan, dated May 8, 1978, and the Gifford Pinchot National Forest Land Management Plan, Part One, dated October 1979. Management actions are coordinated through an agreement last revised in 1987.

Management direction provides for emphasis on recreation and Wilderness with no planned or programmed timber harvest.

The Lewis County Planning Department states that the White Pass Area is not included in their Comprehensive Plan or contains any special requirements. Only normal permits would be required, e.g., building permits.

RECREATION

RECREATION OPPORTUNITY SPECTRUM

White pass is a popular year-round recreation area. Recreation opportunities there vary due to setting, activity and experience opportunity, all of which differ from winter to summer. White Pass recreation opportunities have been inventoried using a system called the Recreation Opportunity Spectrum (ROS). [See Figure III-14.] The range of recreation opportunities present indicates the types of experiences that can be expected in different areas. An explanation of categories is included in Appendix D.

WINTER ACTIVITIES

While many activities can take place, Snowshoeing, camping, and skiing are the primary winter activities in the White Pass area. It is not regularly used for snowmobiling and the White Pass Company discourages such sports as "tubing." Additional information about winter recreation at White Pass can be found under "Skiing Characteristics," (pages III-1, ff.).

SUMMER/FALL ACTIVITIES

The study area offers hiking, horseback riding, camping, boating, fishing, mountain biking, chair lift rides and general sight-seeing, photography and enjoyment of the outdoors in a mountainous setting. Following is a short discussion of specific recreational activities available at White Pass..

HIKING/HORSEBACK TRAILS

White Pass offers hiking in the Goat Rocks and William O. Douglas Wildernesses on several maintained trails, including the Pacific Crest National Scenic Trail. Activities typically associated with hiking include photography, picnicking, sight-seeing, fishing and camping. The following, from the Naches [Tieton] Ranger District Trail Guide, is a brief description of the trails in the vicinity of White Pass. [See also Figure III-17.]

TABLE III-8, WHITE PASS AREA HORSE AND FOOT TRAILS

Trail Name	Number	Mileage	Uses	Notes
Chair Lift	1112	0.3	hiker, horse	Short tie trail between White Pass chair lifts and the PCT. Hard to follow downhill from chair lifts.
Hog Back	1144	5.5	hiker, horse	Ties between the Round Mountain trailhead and the PCT. Not recommended for horses. Good view. Two difficult sections.
Pacific Crest	2000	13.3	hiker, horse	Pacific Crest National Scenic Trail. White Pass south to Old Snowy Mt. Camping and fires prohibited at Shoe Lake. Alternate camping at Hidden Springs.
Pacific Crest	2000	27.6	hiker, horse	White Pass to Chinook Pass. Scenic forest canopy with some outstanding views. Heavily used. High-level trail maintenance. Dispersed Campsites encouraged. Northern 10 miles shared by U.S. Park Service.
Dark Meadows	1107	1.8	hiker, horse	Ties PCT to Cramer Lk. Trail and Dog Lk. Campground for loop hike.Party size restrictions in the Wilderness
Sand Lake	60	4.1	hiker, horse	Climbs steeply through dense forest from road 1284 trail, enters W.O. Douglas Wilderness, continues level past Cortright Point to PCT, and terminates.

CAMPING

There are three developed campgrounds in the vicinity of the White Pass Ski Area. They are Dog Lake Campground, White Pass Campground, and White Pass Horse Camp. [See summer alternative map, Figure II-8.]

Dog Lake Campground is at 4300 feet elevation on the south shore of Dog Lake adjacent to Highway 12. It has eleven camping units.

White Pass Horse Camp, elev. 4550 ft., is adjacent to Leech Lake and the White Pass Lake Campground. It has six camping units, eight hitch rails, a loading ramp and a watering area. On high-use weekends overcrowding is a problem as large horse groups converge on the site. Several solutions have been discussed for dealing with this problem. They include initiating a permit system, altering the sites to physically limit parking and/or camping, providing alternate sites to disperse the use, and enforcing the 6 site/18 vehicle capacity of the horse camp.

Camping in the Goat Rocks and William O. Douglas Wildernesses is generally unrestricted. No camping is allowed within 200 feet of the PCT nor within 100 feet of Wilderness lakes (200 feet for horses). Shoe Lake Basin is closed to camping.

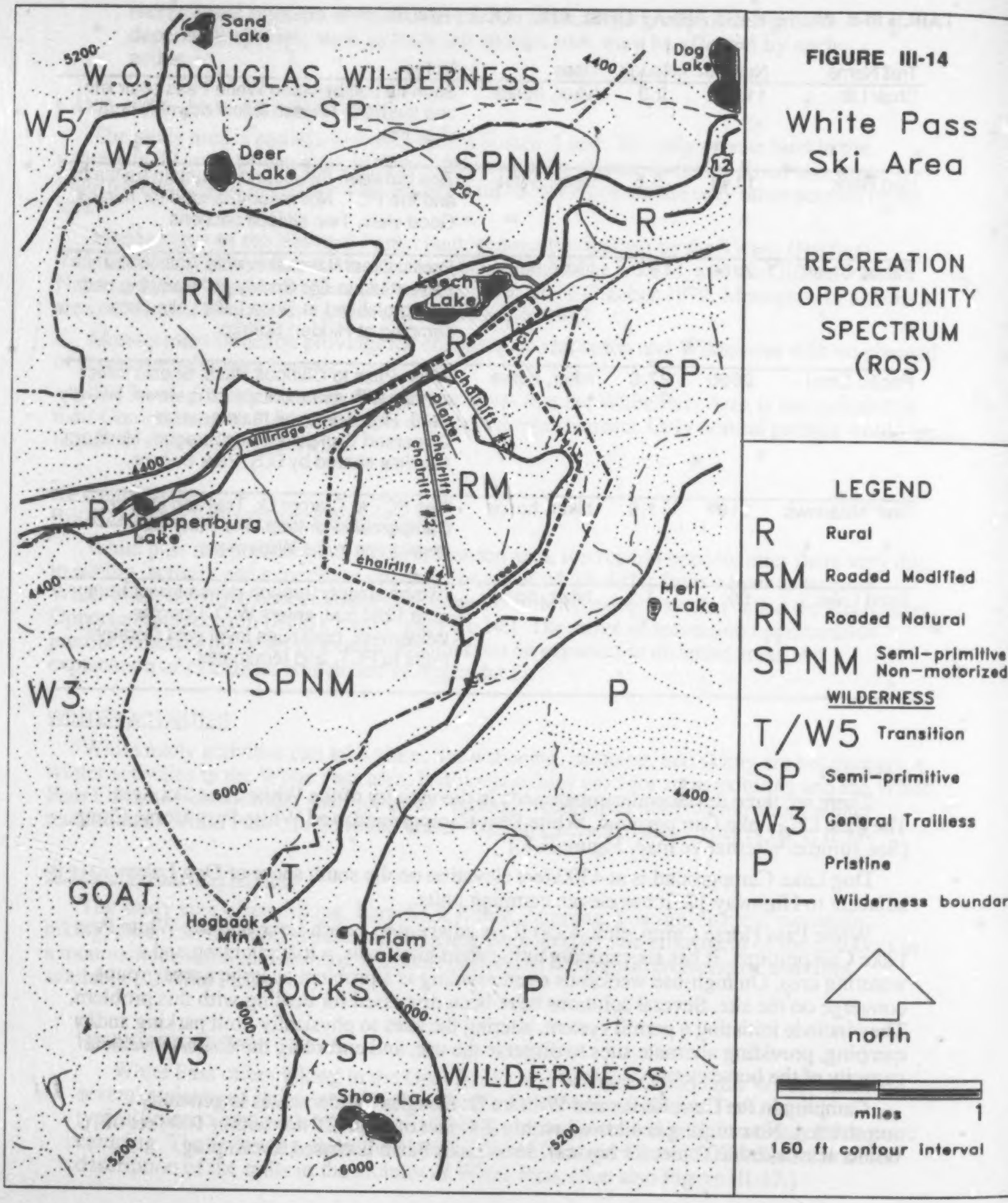


FIGURE III-14

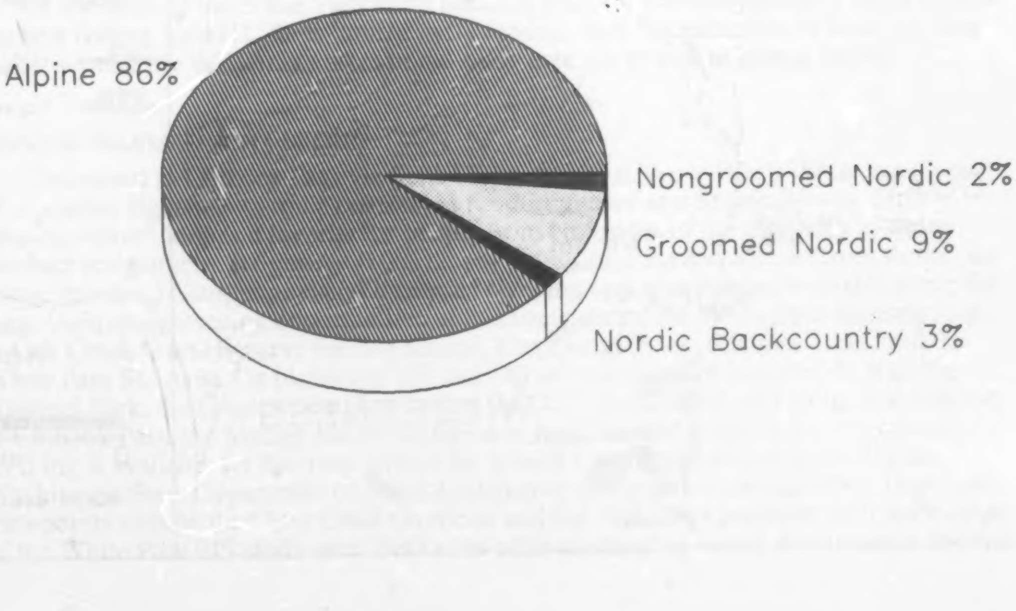
White Pass Ski Area

RECREATION OPPORTUNITY SPECTRUM (ROS)

Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
W5
W3
SP
Deer Lake
SPNM
PCT
12
R
RN
Leech Lake
R
PCT
SP
chairlift #3
platter
chairlift #2
chairlift #1
road
Millridge Cr.
4400
RM
R
Knappenburg Lake
chairlift #4
road
4400
Hell Lake
W3
SPNM
P
6000
4400
T
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
P
6000
W3
SP
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
R Rural
RM Roaded Modified
RN Roaded Natural
SPNM Semi-primitive Non-motorized
WILDERNESS
T/W5 Transition
SP Semi-primitive
W3 General Trailless
P Pristine
Wilderness boundar
north
0 miles 1
160 ft contour interval

FIGURE III-15, MIRIAM BASIN, LOOKING SOUTH FROM HOGBACK RIDGE

FIGURE III-16, SKI AREA USE, BY SKIER TYPE



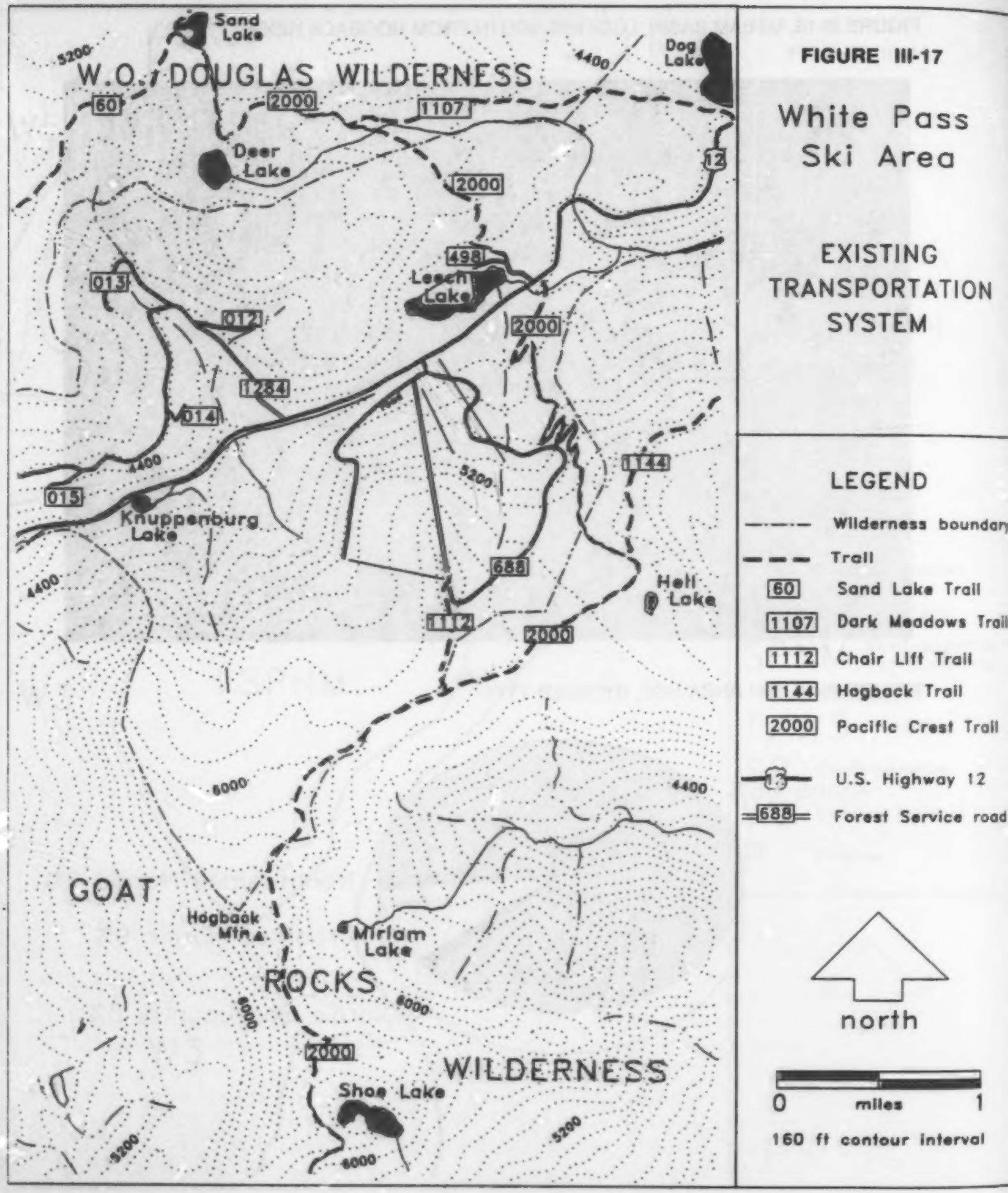


FIGURE III-17

White Pass Ski Area

EXISTING TRANSPORTATION SYSTEM

Sand Lake
Dog Lake
W.O. DOUGLAS WILDERNESS
60
2000
1107
Deer Lake
12
2000
498
Leech Lake
013
012
2000
1284
014
015
Knuppenburg Lake
4400
5200
6000
1144
688
Hell Lake
1112
2000
GOAT
Hogback Mtn.
Miriam Lake
ROCKS
2000
Shoe Lake
WILDERNESS
LEGEND
Wilderness boundary
Trail
60 Sand Lake Trail
1107 Dark Meadows Trail
1112 Chair Lift Trail
1144 Hogback Trail
2000 Pacific Crest Trail
12 U.S. Highway 12
688 Forest Service road
north
0 miles 1
160 ft contour interval

PICNICKING

Picnicking is available at all of the campgrounds listed above, at Knuppenburg Lake, and at the Clear Creek Overlook just east of Dog Lake. All of these have restroom facilities.

MOUNTAIN BIKING

Trails in the White Pass area outside Wilderness can be used by the mountain bike rider, with the exception of the Pacific Crest Trail. The road system within the current White Pass Company permit area is used by mountain bikers, though their use of the ski slopes is discouraged by White Pass Company personnel. For the past couple of years the White Pass Company, along with other corporate sponsors, has staged mountain bike/running races on the nordic trail system. The company encourages use of the nordic ski trail loops by these bikers. Because of Wilderness and PCT restrictions, opportunities for development of additional bike trails is limited at White Pass. The Forest Service does not want mountain bikes in Hogback Basin due to vegetative considerations and its proximity to the PCT.

CHAIR LIFT RIDING

Summer operation of Chair Lift 1 began in 1957. The 45-minute round-trip ride offers users an outstanding view of Mount Rainier and adjacent Wilderness. Use averages 4,000 people per summer season.

BOATING

Boat landings are provided at Dog and Leech lakes. Motorized boats are not allowed on Leech Lake.

FISHING

Of the lakes in the White Pass study area, Leech, Dog and Knuppenburg lakes provide the best fishing. Leech Lake is limited to fly fishing. With the exception of Hell and Deer lakes, none of the Wilderness lakes in the study area are known to have a fishery.

ROADED TOURING/SIGHT-SEEING

Connected to Chinook Pass via State Highway 123 (Cayuse Pass), White pass is part of a popular sight-seeing route considered for designation as a Scenic Byway. This "Sunday drive" loop is a favorite for people from both sides of the Cascades in spring, summer and autumn. (Highway 410 is closed at Cayuse Pass and Morse Creek during the winter months.) Campground and dispersed camping opportunities are available along the way. Unique sightseeing opportunities of this route are on the White Pass highway, e.g., at Oak Creek Game Reserve feeding station, Kloochman Rock, Rimrock Lake, and the White Pass Ski Area. On highways 123 and 410 unique locations include Mt. Rainier National Park, the Grove of the Patriarches, the CCC-constructed trail bridge and overlook at Chinook Pass, the Mather Memorial parkway corridor, and Edgar Rock. A geological road log is available for this loop written by Newell Campbell and distributed by the Washington State Department of Natural Resources (information circular #54). Developed viewpoints include the Clear Creek Overlook and the Palisades Overlook, both just outside of the White Pass EIS study area. Both sites offer outstanding views, the former to the east towards Clear Lake, the Palisades north to Mt. Rainier and down to (looking over) an interesting geologic formation in a lava flow.

Many bicyclists use the White Pass highway each season on cross-state tours.

HUNTING

The area is open to hunting for deer, elk and grouse. Hunting pressure is currently light.

SKI AREA SUMMER OPERATIONS

White Pass Company intends to continue a summer operation which has spanned more than three decades,and chair lift rides might be included. The past and present summer chair lift operation has made the summit of Pigtail Peak accessible to sightseers and hikers via Chair Lift 1 or 2. Future summer operation, as proposed by White Pass Company, would still only use lift 1 or 2.

Besides the Chair Lift 1 or 2 rides, the summer operation includes services near the highway. The Krackerbarrel General Store and Service Station is open every day and, besides providing gas, minor car repair and groceries, is a registered drop site for PCT hikers. The Village Inn Condominiums and the Ski View Restaurant are also open to the public every day. The Day Lodge is not open daily to the general public during the off-season, but may be open and/or reserved for special events, such as meetings, camps, and reunions. For instance, the Clear Lake Running Club uses lodging, food service, meeting rooms, nordic trail system and chair lift for two-weeks in the summer. The Company plans to actively promote use of the facilities in the off-season, May—October. Mountain bike races and trail runs are established events that White Passhosts on the nordic trail system. By providing legal mountain bike use the trail system helps alleviate pressure to control mountain biking in the adjacent Wilderness during the summer, plus it provides groomed track nordic skiing in winter. Thus the trail system is used year-round.

UNIQUE SETTING OF HOGBACK BASIN

Many people consider Hogback Basin important and unique. Its setting is examined for both winter and summer in three parts: physical, social and managerial.

WINTER

The winter physical setting is a predominantly unmodified natural landscape of moderate size and unique visual diversity. The full 360-degree scene holds dramatic views of Mount Rainier, Mount Adams and Hogback Ridge and the Goat Rocks Wilderness. Hogback Ridge and Basin are a high alpine setting with rich diversity in open, natural meadows, glades, angular openings, and snow-covered trees. The area possesses a special combination of topography and accessibility. With its open and gentle terrain Hogback Basin contrasts distinctly with the surrounding forested areas. [See cover and Figures III-18 and 19.]

Snows are relatively deep and remain well into the spring. Conditions may be harsh, with visibility limited at times due to snow and fog, which makes travel difficult. When the snow is "crusty" with ice, skiing is a challenge. The area is a natural extension of the Goat Rocks Wilderness and this makes it feel larger than it really is.

From the social setting standpoint, the area offers an opportunity to get away from crowds of skiers, both alpine and nordic, and other users. Interaction with other skiers may be low, and though there may be evidence of other skiers (e.g., tracks), the opportunity to experience untracked snow in an alpine environment is there.

The area can be presently used by alpine and nordic skiers and by snowshoers, but backcountry nordic skiing (day touring and telemarking) is the main activity. It can be used for a one day "tour-out." Families enjoy the easy access to the semi-primitive setting. Relatively easy access to the Basin using the present ski lifts make it socially more usable than if the White Pass Ski Area were not present. Spring skiing is characterized by deep, long-lasting snow with plenty of sunshine.

Winter camping and skiing in general in Hogback Basin offer the opportunity to feel totally alone and away from others while maintaining reasonably safe access to the lodge and transportation. This area is similar to European ski areas which offer groomed runs and backcountry skiing accessible from common lifts.

From the managerial standpoint, in this setting users have relatively little feeling of controls and restrictions.

Hogback Basin's winter setting offers a high probability of experiencing isolation from the sights and sounds of others, independence, closeness to nature, tranquility, and self-reliance on one's own winter survival and nordic skiing skills. Though this semi-primitive experience, in a high-elevation setting with a panoramic view of mountain peaks and Wilderness, is somewhat moderated by its accessibility from chair lifts, this ease of access is part of the area's uniqueness. This situation is found in very few other places.

FIGURE III-18, WINTER IN HOGBACK BASIN

SUMMER

The opportunity to get away from the sights and sounds of humans may be even greater during the summer. The setting is similar to winter. The meadows are full of a lush variety of low-growing vegetation contrasted against groupings of sub-alpine fir. Distant clear cuts are not as dominant as when filled with snow during the winter. However, while magnificent and beautiful, the summer setting is not considered "unique," as it is matched in other nearby alpine locations.

FIGURE III-19, SUMMER IN HOGBACK BASIN

TRANSPORTATION

HIGHWAY

U.S. Highway 12 provides access to the White Pass area. This is a two-lane, paved highway operated and maintained by the Washington State Department of Transportation (WDOT).

Peak traffic Flows occur during summer months, as shown in Figure III-20.

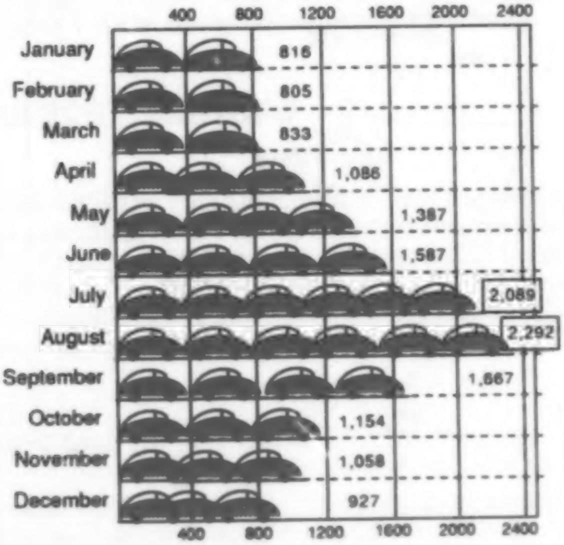
The WDOT has hourly traffic counters near Naches to the east and Packwood to the west. These counters indicate that peak winter hourly traffic is typically less than peak summer traffic:

In vehicles per hour,

Naches summer peak on 8/21/88 was 542, winter peak on 1/24/88 was 489.

Packwood summer peak on 9/3/88 was 513, winter peak (1/1/88) was 364.

FIGURE III-20, AVERAGE DAILY TRAFFIC, U.S. 12, WHITE PASS SECTION



(Source: WDOT)

A WDOT summary of highway accidents occurring within 1/2 mile of White Pass during the last nine years, 1980 through 1988, lists 42 accidents. Thirty-five were during the ski season, November—April. Of these, six were injury accidents, with thirteen people injured. There were no ski season fatalities and no pedestrian-involved accidents reported. Most accidents involved parked vehicles and vehicles entering and leaving the highway. The accident rate here is double the state average for this class of road.

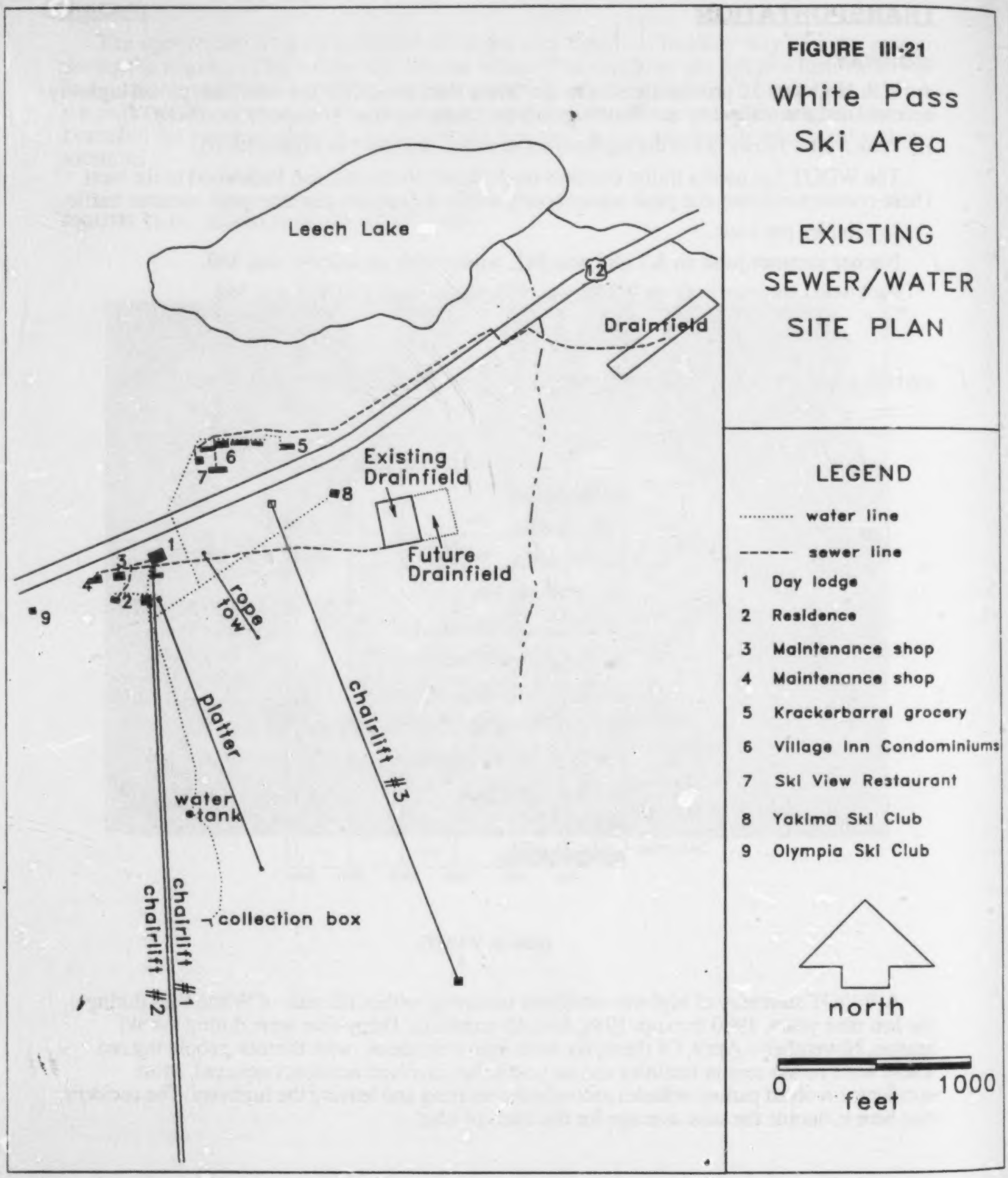


FIGURE III-21

White Pass Ski Area

EXISTING SEWER/WATER SITE PLAN

Leech Lake
12
Drainfield
Existing Drainfield
Future Drainfield
1
2
3
4
5
6
7
8
9
rope tow
platter
chairlift #3
water tank
chairlift #1
chairlift #2
collection box
LEGEND
water line
sewer line
1 Day lodge
2 Residence
3 Maintenance shop
4 Maintenance shop
5 Krackerbarrel grocery
6 Village Inn Condominiums
7 Ski View Restaurant
8 Yakima Ski Club
9 Olympia Ski Club
north
0
1000
feet

ON-SITE ROAD SYSTEM

Within the permit area two work roads exist: one, #688, to the east and south, circling to the top of Pigtail Peak, the other to the west to the bottom of Chair Lift 4 [See Figure III-17 for locations.] Both of these are single lane and unsurfaced and are essentially 4-wheel drive roads. They are closed to public travel.

TRAIL SYSTEM

PACIFIC CREST TRAIL

The Pacific Crest National Scenic Trail passes through the study area. It enters the area from the William O. Douglas Wilderness to the north, passes around the east end of Leech Lake and crosses the highway to the east of White Pass. It then climbs through dense timber to the upper basins where it crosses the saddle near Hogback Mountain and enters the Goat Rocks Wilderness in Shoe Lake Basin.

OTHER TRAILS

The other trails in the study area are discussed in the "Summer Recreation" section. [See also Figure III-17, Existing Transportation System and Table III-6.]

PUBLIC AND SUPPORT SERVICES

WATER SYSTEM

The water system for the White Pass Ski Area is a Class 3 system reviewed by the Lewis County Health District. It is taken from a spring (which is also the source for the easternmost South Fork of Millridge Creek) at cliff line about 300 feet east of Chair Lifts 1 and 2. Water is piped underground from there to a 50,000-gallon water tank located on the slopes above the lodge. Water flow is estimated at 400 gallons per minute (gpm) (USFS estimate from 1965). No treatment of the water is required prior to use. [See Figure III-21, Existing Sewer and Water Plan.]

WASTEWATER DISPOSAL

DESCRIPTION

Wastewater disposal at the White Pass Ski Area consists of several independent systems under the jurisdiction of the Yakima County Health District. The day lodge is served by a 15,850-gallon septic tank for the men's restroom and the kitchen, an 8,150-gallon septic tank for the women's restroom (no splitter box is used), and 16,000 square-feet of drain field trench bottom area (30 laterals, 180 feet long and 3 feet wide). The Olympic Ski Club, the residence and the shop building each have a separate septic tank, but use the same drain field as the day lodge. The Yakima Ski Club has a separate septic tank and drain field. The condominiums, restaurant and service station/grocery in White Pass Village use a common 12,900-gallon septic tank, with effluent piped across Highway 12 to a drain field near the eastern boundary of the permit area. [See Figure III-21.]

The size and capacity of wastewater systems at ski areas is difficult to determine due to the extreme fluctuations in usage. It is important, however, to have a system that is able to handle peak flows so there is no failure or overflow. The present wastewater system for the Day Lodge appears to be adequate for current peak flows using the following evaluation:

1. Daily Flow Rate Method:

Size of System - 24,000 gallon septic tank
Required detention time - 1.5 days
Therefore: maximum daily flow = 16,000 gallons

Use per person = 6.3 gallons (from '83/'84 flow study)
Then: Capacity = 2540 people per day

For the peak use period: Christmas season (12/26/88-1/1/89)
Ave. visits (including non-skiers) -- 2081 people/day
Peak day = 2,485 people (compare to cap. of 2,540 people)

The present day lodge system has a design flow rate of 16,500 gallons per day (Davis/Scheible Engineering Report 7/6/84). From the above analysis, it appears that the present septic tank is adequate to handle the maximum 24-hour and the current peak uses

The wastewater disposal system for the Village Inn Condominiums is a 12,900-gallon septic tank and a 10,800-square-foot drain field. At a detention time of 1.5 days (as required by State of Washington DSHS Standard), the maximum flow rate capacity is estimated to be 8,600 gpd. The septic tank, built in 1965 (to the standards of that year), is about 150 feet behind the Krackerbarrel Grocery/service station. The drain field is south, across Highway 12 between the inlet stream to Leech Lake and the outlet stream from Leech Lk. (Clear Creek). It also serves the Krackerbarrel and the Ski View Restaurant, but the restaurant has a 150-gallon grease trap as well.

The condominiums average 80% occupancy during winter weekends. There are 55 rooms, with kitchens, that can accommodate between two and eight people each. Using an average occupancy of four people per room, total occupancy is 176. The EPA Manual shows typical water usage for motels to be 52.8 gallons per day per person. 176 people, each using 52.8 gallons a day, equals 9,300 gallons per day total wastewater flow. On a busy winter weekend day the restaurant serves as many a 350 meals, breakfast, lunch and dinner. For restaurant wastewater systems the EPA Manual recommends a design based on a typical flow of 2.6 gpd/meal. 350 meals at 2.6 gpd/meal is 910 gpd. In terms of volume, wastewater produced by the Krackerbarrel is considered insignificant for this analysis. The total wastewater produced by the condominiums and the restaurant on a peak use winter weekend is estimated to be 10,210 gpd. Capacity as noted above (with a 1.5 day detention time) is 8,600 gpd. It appears that the septic tank is operating at 125% capacity by current standards on peak winter use days.

At an estimated peak flow rate of 10,210 gpd and 0.75 gpd per square foot of drain field, the drain field should have a minimum of 13,600 square feet. It is operating at 133% capacity by current standards on peak winter use days.

ELECTRICITY

The Benton Rural Electric Association supplies electricity to the White Pass Ski Area. The transmission lines in the vicinity of the ski area are underground. Existing chair lifts are powered by electric motors and are backed up with diesel generators. To handle an increased load from additional chair lifts and user facilities, existing lines would need to be upgraded.

BASE AREA AND SUPPORT FACILITIES

DESCRIPTION

The Day Lodge has recently been expanded and now is about 20,000 square feet. This includes approximately 6000 square feet of restaurant seating, 4400 on the second floor and 1600 on the mezzanine level. The Ski View Restaurant, across the highway from the Day Lodge, has an additional 850 square feet of restaurant and bar seating.

Other base area facilities include the Yakima and Olympia Ski Clubs buildings (3000 square feet each), the Krackerbarrel service station and grocery store (2,200 sq. ft.), and the Village Inn Condominiums. Service facilities include a single family residence for the Mountain Manager, a shop building, a garage, and lift terminal structures.

SPACE REQUIREMENTS

Ski industry standards suggest that day use restaurant seating be 20% of the SAOT (skiers at one time) design capacity, with three square feet per seat (Uniplan Associates, 1981: Social and Economic Effects of the Proposed Ski Development at Early Winters Ski Area; and, Farwell, Ted, 1979: A Manual for Preparing Break Even Analysis). This would indicate a present need for 500 seats and 1,500 square feet of restaurant space for the 2,500 SAOT comfortable capacity at White Pass.

To figure the space required to serve "skier needs for food, beverages, warmth, toilets, safety equipment, repair, instruction, and social interactions," Uniplan and Farwell (ibid.) suggest multiplying the ski area design capacity by 7.14 square feet. With 2,500 SAOT capacity at White Pass, this would mean a need for 17,850 square feet for all these services. Total base area facilities would then need 19,350 square feet. The present base area facilities, summarized below, are ample for the current comfortable capacity.

Day lodge	20,000	sq. ft.
Ski View Restaurant	850	
Yakima Ski Club	3,000	
Olympia Ski Club	3,000	
Krackerbarrel	2,200	
TOTAL	29,050	sq. ft.

PARKING

Parking currently covers approximately 9 acres, primarily along Highway 12 (1,000 vehicles) and in parking lots adjacent to the condominiums (250 vehicles). [See Figure I-2.] The actual parking capacity is about 1,250 vehicles, serving 3,750 people at 3 people per car.

These are the same parking areas used by the nordic groomed trail skiers. On peak use days, as during the Christmas holiday season, parking space is adequate to handle current peak demand, although people may have to walk farther to reach the ski trails and base facilities.

OVERNIGHT LODGING

On-site lodging is available at the Village Inn Condominiums, where 47 rooms are reserved for overnight use by skiers. There are 55 units there, plus an office and Manager's quarters. Of the 55 units, two are owned by White Pass Company and are used for their employees and/or guests, two are used for employees of the Village Inn, and four are reserved exclusively for the owners. Weekend occupancy during the winter is 80 percent, weekday occupancy about 19%. Use by owners is about 19% of occupancy and public use about 80% of occupancy. (These figures were submitted in response to a USFS request in 1985 and are felt to represent the years 1980—1985.)

Additional lodging is available at Packwood, 25 miles to the west, where 87 rooms are available. Twenty miles east in the Rimrock Lake/Trout Lodge area there are 34 rooms available. And the Yakima metropolitan area 50 miles east counts 1600 rooms for overnight use.

It is currently estimated that 25—35% of the skiers stay overnight in either the Packwood and Randle areas or on the the east side down to Yakima (65—75% of skiers are day skiers).

PUBLIC SAFETY

Police protection in the White Pass area is provided by the Washington State Patrol and by the Yakima and Lewis Counties Sheriffs' Departments.

Fire protection for the general area is provided by the Forest Service. White Pass Company has the following equipment and capabilities:

- Pumper unit
- Sprinkler system in Day Lodge
- Hydrants and hoses around base area.
- 50,000 gallon water storage tank sized for fire protection.

HAZARDS

Three terrain-related public safety situations exist in the proposed expansion area.

"Grand Couloir"

This is a steep, unskiable, rocky chute between proposed Chair Lift 6 and Knuppenburg Lake. To prevent skiers from inadvertently entering this area, White Pass Company proposes installation of a "catch road," a permanent fence and "Ski Area Boundary" signs.

Gentle Slopes East of Hogback Basin

These are east of the proposed Chair Lift 5. Skiers could glide into this area, lose their way and get into trouble in the steep, rugged terrain of Hell and Miriam Creeks. White Pass Company proposes posting the new boundary with "Ski Area Boundary" signs. Regardless of the signing, accidents can still happen.

Avalanche Hazard.

This situation is described earlier in this chapter. White Pass Company plans to control avalanches within the permit area as in the past. Signing can also be used to manage the danger. Avalanche hazards in the Goat Rocks Wilderness (Miriam Basin, Shoe Lake Basin) can be moderate to high. The Company proposes to sign the permit boundary but considers the Forest Service and the counties to have responsibility for managing access to the Wilderness.

CHAPTER IV
ENVIRONMENTAL CONSEQUENCES

This chapter discusses the direct, indirect and cumulative environmental consequences of implementing the alternatives described in Chapter II and is the basis for comparing them. It includes adverse environmental effects which cannot be avoided, the relationship between short-term uses of the environment and long-term productivity, and any irreversible or irretrievable commitments of resources.

INTRODUCTION

IMPACTS DEFINED

An impact is described as any change in social, economic, physical or biological factors which results from direct or indirect effects of an action. It may be adverse or beneficial. The following definitions are used:

Short-Term Impact: One which occurs during construction and/or for one or two years thereafter. It may also occur after brief activity associated with operation and maintenance.

Long-Term Impact: One which continues for an extended period of years. It may be permanent.

Direct Impact: One which occurs as the direct result of development activity, including construction, operation and maintenance.

Indirect Impact: One which develops as the result of a direct impact but which would not have occurred otherwise. This type tends to be gradual.

The environmental consequences described in this chapter are grouped under the same headings used in Chapter III, "Affected Environment." As applicable, each section includes discussion of on-site and off-site effects. For analysis purposes, 1990 is assumed to be the starting date for construction of facilities, if approved. It is recognized that any construction would be phased in over a number of years; however, this would cause no significant changes in the environmental effects as presented and may even be beneficial.

MANAGEMENT AND MITIGATION

The proposed Forests' Management Directions, Appendix E, and the mitigation requirements listed in Chapter II, "Alternatives," are assumed to be implemented, for the purposes of this analysis. These measures are intended to eliminate or reduce negative impacts and to implement positive ones. Where appropriate, additional mitigation measures are added in sections in this chapter. The extent to which the mitigation measures should be used must be determined for each project. It is recognized that (1) additional requirements may be added, and (2) requirements may be revised later as maintenance and/or construction methods change.

The study area is defined in the Introduction to Chapter III, "Affected Environment." [See Study Area map, Figure III-3.]

ID Team members contributing to the analysis in this chapter, as well as to the rest of the document, relied on field work, literature reviews, published research findings, consultation with other experts and specialists, and their own training and experience. Specific references are cited within the text. Other related sources not specifically mentioned in the text are included in the analysis file.

PHYSICAL AND BIOLOGICAL RESOURCES

AIR QUALITY

Short-term air quality impacts resulting from construction would include increased vehicle and equipment emissions and increased amounts of suspended particles from grading and other site preparation activities. With appropriate dust control measures, such as sprinkling with water, the short-term air quality impacts would not be significant.

In the long-term, air quality impacts within the permit area would be caused mainly by increased vehicle emissions (more skiers means more vehicles, which means more emissions). Outside the permit area they would be the result of both vehicle and wood stove emissions.

REGIONAL

On a regional basis, the development would not lead to a significant increase in traffic volumes (and resulting vehicle emissions) in either the Puget Sound or Yakima Valley airsheds. The traffic to White Pass is an extremely small percentage of the total traffic in each area.

CLASS I AREA

The Clean Air Act (PL88-206) as amended requires that existing air quality for Class I areas be protected. The only Class I area in the vicinity of White Pass is the Goat Rocks Wilderness. Project-related pollutants would originate within the permit area and along the Highway 12 corridor, but with the prevailing east and west airflows and the resulting exchange and dispersion, these pollutants are not expected to impact the Wilderness.

The remainder of the study area, including the William O. Douglas Wilderness, is Class II area. (Wilderness created by the 1984 Washington Wilderness Act is Class II air quality area.)

GEOLOGIC HAZARDS

The alternatives would not adversely impact the resources of the study area as a result of geologic hazard. Typically, the greatest potential for an adverse impact from development activities is related to construction of roads. None of the roads required for any alternative would traverse ground known to be particularly sensitive to road construction.

One 100-foot segment of the extension catchline road (in Alternatives 3—7) would traverse SRI Mapping Unit 7 identified in the Gifford Pinchot Soil Resources Inventory as having an increased potential for mass movement as a result of man's activities. A study of the road's proposed location ("A Geotechnical Assessment of the White Pass Proposed Expansion," by James P. Brazil and Richard M. Wooten, November, 1985), found that with proper design, including outsloping of road, rock stream crossing, etc., the site would not increase the slope's potential for failure.

Existing landslide areas, as shown on the Geologic Conditions map, Figure III-4, would not be adversely impacted by any of the proposed alternatives.

MITIGATION

Implement the design recommendations in Brazil and Wooten for that section of catchline road in SRI Unit 7.

SOILS

SOIL DISPLACEMENT - (SOIL PARTICLES MOVED FROM THEIR NATURAL LOCATION)

Acceleration of the natural rate of soil erosion would occur as a result of all alternatives except 1 and 2. Cut and fill slopes from the construction of roads is the biggest contributor to increased erosion. Soil displacement estimates were made based on a logical, systematic process developed by Phillip McColley, Wenatchee National Forest soil scientist. Mr. McColley thinks the values developed by his model are maximums, i.e., displacement at its worst. The values shown below are based on successful mitigation of impacts that would disturb the soil. Cut and fill slopes are assumed to be immediately seeded and mulched and/or covered in a manner to attenuate the effect of water on bare soil. The soil displacement values for cut and fill slopes assume 80% cover and 20% bare soil after construction and subsequent mitigation measures. [See Figure IV-1, Soil Displacement and Sedimentation charts.]

ALTERNATIVES 1 AND 2

Soil displacement for the existing condition is estimated to be:

Existing roads	137.4	tons/year
Existing cleared runs	42.5	
Permit area - forest background	11.2	
Hogback Basin - background	20.4	
Knuppenburg - background	15.0	
TOTAL displacement	226.5	tons/year

Average soil displacement is 0.12 tons/acre/year (about 240 pounds or 3 cubic feet) based on 1820 acres within existing and proposed areas.

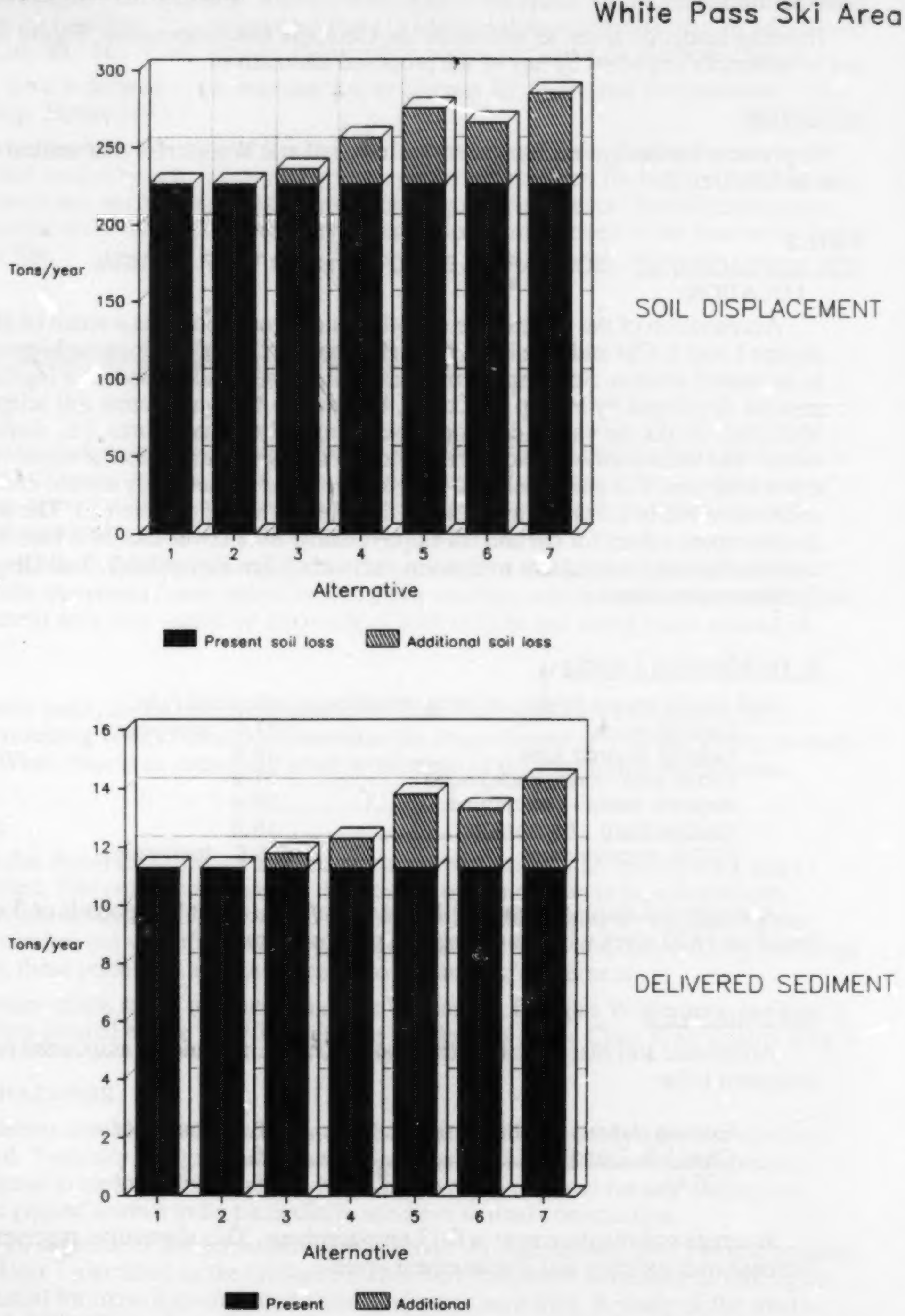
ALTERNATIVE 3

Additional soil loss from construction of Chair Lift 7 and its associated runs is estimated to be:

Existing clearing and background	226.5	tons/year
Chair Lift 7 and runs	9.7	
TOTAL	236.2	tons/year

Average soil displacement is 0.13 tons/acre/year. This alternative represents a 4% increase over existing soil displacement levels.

FIGURE IV-1, EFFECTS ON SOIL



ALTERNATIVE 4

Additional soil loss from construction of Chair Lift 5, a road to the proposed warming hut, and a catchline road to the bottom of chair 5 is estimated to be:

Existing clearing and background	226.5	tons/year
Chair Lift 5 and runs	1.7	
Warming hut road	4.5	
Catchline road extension	23.8	
TOTAL	256.5	tons/year

Average soil displacement is 0.14 tons/acre/year. This alternative represents an increase in soil displacement of 13% over the existing condition.

ALTERNATIVE 5

Additional soil loss from construction of 2 chair lifts in Hogback Basin, an extension of the catchline road, and a road to the proposed warming hut is estimated to be:

Existing clearing and background	226.5	tons/year
Chair Lift 5 and 6 and runs	2.8	
Warming hut road	4.5	
Catchline road extension	41.5	
TOTAL	275.3	tons/year

Average soil displacement is 0.15 tons/acre/year. This alternative represents an increase in soil displacement of 22% over existing condition.

ALTERNATIVE 6

Additional soil loss from adding Chair Lift 5 in Hogback Basin and Chair Lift 7, extending the catchline road, and constructing a road to the proposed warming hut is estimated to be:

Existing clearing and background	226.5	tons/year
Chair Lift 5 and runs	1.7	
Chair Lift 7 and runs	9.7	
Warming hut road	4.5	
Catchline road extension	23.8	
TOTAL	266.2	tons/year

Average soil displacement is 0.15 tons/acre/year. This alternative represents an increase in soil displacement of 18% over existing condition.

ALTERNATIVE 7

Additional soil loss from adding Chair Lifts 5 and 6 in Hogback Basin, adding Chair Lift 7, extending the catchline road, and constructing a road to the proposed warming hut is estimated as follows:

Existing clearing and background	226.5	tons/year
Chair Lift 5 and 6 and runs	2.8	
Chair Lift 7 and runs	9.7	
Warming hut road	4.5	
Catchline road extension	41.5	
TOTAL	285.0	tons/year

Average soil displacement is 0.16 tons/acre/year. This alternative represents an increase in soil displacement of 26% over existing conditions.

DELIVERED SEDIMENT

Delivered sediment is the soil that reaches local streams. Research by the Intermountain Research Station in Boise, Idaho, suggests that delivered sediment associated with timber harvest activities is generally less than 10 percent of the soil eroded (5-10% in roaded watersheds and 2-6% in unroaded watersheds). Assuming 5% of the displaced soil reaches the streams in the area, delivered sediment estimates by alternatives are:

Alternatives 1 and 2	11.3 tons/year	Alternative 5	13.8 tons/year
Alternative 3	11.8	Alternative 6	13.3
Alternative 4	12.8	Alternative 7	14.3

EROSION HAZARD SUMMARY

Following are the environmental consequences of each alternative in terms of erosion potential. See also "Soil Displacement," above.

ALTERNATIVE 1 (NO ACTION)

This alternative would have no additional adverse effect on the soil resource.

ALTERNATIVE 2

This alternative would have slight additional impact on the resource. Its impact would be from relocation and soil disturbance related to the construction of Chair Lifts 3 and 8.

ALTERNATIVE 3

This alternative would have some impact on the soil from construction of a road from the end of the existing catchline to the upper terminal of Chair Lift 7, construction of additional Chairlifts, and the clearing of additional ski runs.

ALTERNATIVE 4

This alternative would also impact the soil resource through construction of roads (extending the catchline and for access to the warming hut), construction of ski runs associated with proposed Chair Lift 5, and lift tower and warming hut construction. Road construction would have the greatest impact on erosion.

ALTERNATIVE 5

This alternative would impact the soil through construction of the catchline extension, the access road to the warming hut, ski runs associated with Chair Lifts 5 and 6, and lift towers. Road construction and the resulting cuts and fills would have the greatest impact on the resource.

ALTERNATIVE 6

This alternative would impact the soil resource through construction of the catchline extension, the access road to the warming hut, runs associated with Chair Lifts 5 and 7, and lift towers. Road construction would have the greatest impact on the resource.

ALTERNATIVE 7

This alternative, maximum development, would have the greatest impact on the soil resource. Road, ski run, lift tower, and warming hut construction would impact soil loss and soil compaction. All of the proposed additional chair lifts would be constructed.

MITIGATION

For mitigation of soil impacts see construction mitigation sections under "Recreation" for chair lift facilities, "Public and Support Systems" for buildings and utility lines, and "Transportation" for roads and trails.

WATER

USE

Consumptive water use at White Pass would increase as use of the area increases (about 6.3 gallons/day/person). Downstream water use would not be significantly affected as a result of any of the alternatives.

QUALITY

The alternatives would not adversely impact the long-term water quality of the study area. Some short-term impacts could occur during construction of the roads, lift lines, towers and ski runs. There is also the potential with all development alternatives for fuel spills during construction.

Water quality of Leech Lake might be improved. The present condominium septic tank and drain field are possibly affecting the lake adversely. All alternatives provide for bringing this system up to current standards.

SURFACE RUNOFF

Created openings for roads and ski runs would allow more snow to accumulate in them and, theoretically, because of greater accumulation, surface runoff would increase. This could result in increased erosion and soil displacement.These effects are summarized in the preceding section.

Cumulative effects to the watersheds would be very minor. There might be a small incremental effect on the Cowlitz drainage, but one insignificant compared to the logging, agricultural and development impacts downstream. The same would be true of the Tieton River drainage.

FLOOD PLAINS AND WETLANDS

There would be no adverse effects on flood plains or wetlands. No activities are proposed in these areas or in areas that will impact them.

MITIGATION

For mitigation of impacts on water see construction mitigation sections under "Recreation" for chair lift facilities, "Public and Support Systems" for buildings and utility lines, and "Transportation" for roads and trails.

WILDLIFE AND FISH

All the species discussed in Chapter III and some of their critical habitat needs will be briefly described and discussed. Short and long-term impacts will be addressed, along with cumulative effects. Some mitigation measures to reduce these impacts will also be covered.

Certain habitats are more vulnerable to management activities than others, and habitat effectiveness can be reduced or eliminated. On the other hand, some management activities improve certain kinds of habitat. Mitigating measures can be prescribed to further reduce negative impacts.

Another important concept is critical, or limiting, needs, which influence species viability. All wildlife have them. For example, for deer and elk, the area available during the winter and its quality are more limiting than their summer range needs. Calving or nesting seasons are other examples of critical need.

NORTHERN SPOTTED OWL

If at some future point owls were to move into the area, only alternatives 3, 6 and 7 involving construction of Chair Lift 7 and the resulting cut in mature timber for the runs might impact their use of that forested habitat. Even then, much of the habitat would remain and could be used for foraging. Ski runs would be cut from 100 to 150 feet wide. These widths can probably be crossed by foraging or migrating owls. Their foraging need is not limiting, in the White Pass situation, given the enormous amount of old-growth habitat in the adjacent Goat Rocks Wilderness, particularly in the Clear Fork of the Cowlitz River drainage, an undisturbed, low-elevation habitat. In addition, suitable habitat for movement of birds exists on the north side of Highway 12.

MITIGATION

Maintain narrow necks of not over 90-100 feet in runs to facilitate owl movement and their use of appropriate habitats,.

Additional surveys may be needed during site-specific project planning for areas that could be impacted by Chair Lift 7 and additional parking on the east side of the permit area.

MOUNTAIN GOATS

The mountain goats in the White Pass area can be separated into two groups by their behavior: native goats and those that have been transplanted. Behavior varies considerably between them and is a function of disturbances, such as hunting. The transplanted goats came from protected areas and the native goats have been subjected to hunting pressure. In time, populations can adapt to increasing disturbances by humans, if these disturbances are kept down and the goats' needs, such as hiding and escape cover and resting or mineral lick areas, are provided for.

Overall, introduction of additional foot traffic/hiking trails should be negligible for Alternatives 8(S) and 9(S) as hiking and off-trail travel already occur in the area with no known adverse effect.

There may be a long-term impact to mountain goat summer habitat with Alternative 10(S). This would occur through the introduction of hiking trails to the Hogback Basin area, which would in turn increase the number of people passing through. Any expansion would increase overall use of the ski area, and even more people would be expected year-round, with or without additional trails.

DEER AND ELK

The main impact to deer and elk would be from the introduction and use of this area by more people. The level of impact would vary by alternative. Alternative 7, which calls for full development, would result in a bigger name for White Pass and would increase summer use in general. Alternative 10(S) would involve construction of trails in Hogback Basin, allowing easier access to that locality. Big Game would either acclimate to the increased numbers of people or would begin avoiding the area.

Alternatives 3, 6 and 7, which involve the construction of Chair Lift 7, would remove forested areas, but would create additional foraging areas for deer and elk. These areas would be maintained as ski runs, creating a beneficial long-term impact by increasing forest edge and foraging value.

An additional impact for any development alternative would be short-term, involving the actual construction of facilities, including construction noise and traffic. The disturbances would likely impact the area for entire summer seasons.

WILDLIFE WINTER RANGE - (LEWIS COUNTY)

One indirect impact of ski area expansion and the resultant increase in use would involve overall winter range conditions in eastern Lewis County. Winter range could be diminished by development of summer homes, businesses and services that cater to the increased visitor needs. This impact would be greatest in the area around Packwood.

Increased development of recreational lots is now occurring in the area and has already impacted the winter range. Expansion of the Ski Area would add to this pressure. However, much of the winter range in the east end of the county is under Forest Service management rather than private ownership, which tends to lessen some of the overall impacts to winter range.

Tacoma City Light is considering the acquisition of lands in the Packwood/Skate Creek area to mitigate impacts on winter range lost through construction of the Mossyrock and Mayfield dams on the Cowlitz River. This would help maintain winter range in the eastern end of the county. Their acquisition plans could be affected by increased land value which is partially, but not entirely, due to the Ski Area expansion.

WILDLIFE MITIGATION

Study site-specific locations of summer trail system to avoid key use areas such as mineral licks, wallows, escape cover, etc. Location should be done in consultation with the biologist.

Various agencies involved continue to coordinate winter range strategies and needs and to consider the possible impacts of accelerated development of private lands.

FISHERIES

Construction of Chair Lift 7 and resultant ski runs would increase the potential for additional sedimentation into Knuppenburg Lake. Of particular concern are the base of Chair Lift 7 and the small turnaround area. In 1987 the Department of Wildlife reviewed the project on-site and determined there would be minimal impact on the lake fishery. This was based on the following assumptions: the chair base would be one-quarter mile from the lake; the chair would be located out of the flood plain; a buffer zone of trees would be left standing between the lift base and the lake; and, there would be minimum development of parking.

Most of the proposed development is in the Millridge Creek drainage. There would be little impact to Leech Lake except for impacts that could result from additional demands on the sewage system. (This is discussed in the Physical Impact section.)

Increased fishing pressure during the summer months would likely occur with additional summer visitors associated with the Ski Area expansion.

MITIGATION

Correct deficiencies in condominium sewage system and bring it up to current standards.

Require logging of timber to clear runs for Chair Lift 7 to use techniques to minimize ground disturbance. Allow logging only during the time of the year appropriate for minimizing erosion potential.

Seed or treat exposed areas immediately to minimize accelerated surface run-off and subsequent erosion.

Consider the impacts from increased pressure when writing future fishing regulations for these lakes.

THREATENED AND ENDANGERED SPECIES

PEREGRINE FALCONS AND BALD EAGLES

Short term impacts (if these raptors are present) would include the construction activity that would likely make portions of the area unattractive for foraging. Long-term impacts would be the presence of additional humans, which would occur to some extent with or without a trail system, resulting in disruption or elimination of these feeding areas.

LARCH MOUNTAIN SALAMANDER

The greatest impact to potential habitat would occur with the catchline road that provides access to Chair Lifts 5 and 6. Additional impacts to the potential habitat could be the removal of mature timber adjacent to talus slopes that fit the salamander's preferred habitat.

Site specific reconnaissance would be done in the talus slope areas that exhibit the preferred habitat and that would be directly impacted by road construction, timber removal or placement of lift towers.

CONCLUSION

Potential and occasional use of the area by these species is most likely to occur in the late summer or early fall and would primarily involve foraging or travelling activities. The presence of additional people in the summer might make this utilization less frequent. However, these threatened and endangered species would not be adversely impacted by the proposed development.

The phased-in nature of the proposal would tend to lessen disruption from construction activities, giving species time to acclimate themselves, rather than face major changes all at one time.

GENERAL WILDLIFE CONCERNS

The presence of structures such as lift towers and support buildings is not a major wildlife concern. In fact, the towers could provide some "high tech" habitat in the form of perches for birds and raptors.

The cutting of timber for Chair Lift 7 and runs near Knuppenburg Lake would add an element of diversity to the vegetative composition, thus increasing habitat diversity. This, in combination with the increased "edge effect," would have a positive overall impact on habitat, as the ski runs would be kept between 100 to 150 feet in width.

There would be slight reduction in mature forest habitat with the construction of Chair Lift 7. This would result in the displacement of small mammals, cavity nesters, etc.

The project proposal has no direct impact on winter habitat needs for the wildlife species discussed. Deer and elk winter range would be affected indirectly by development pressure in eastern Lewis County, though it is not considered significant. Minor impacts could occur on summer habitat for all species because of the introduction of a hiking trail and additional people. However, these impacts are thought to be not significant.

There is little relative change in impacts by alternatives, except those involving the construction and development of Chair Lift 7, which results in minor impacts to species dependent on mature forest settings. Development of Chair 7 would have beneficial impacts to deer and elk populations exploiting the grass/forbs vegetative stage.

VEGETATION

Implementing the various alternatives would impact the three identified plant communities:

Heavily Timbered Slopes of Old-Growth Trees

Alternatives 3, 6 and 7, which include construction of Chair Lift 7, would have the greatest impact. After cutting the ski runs the potential of windthrow to the timber edges would be real. The runs would need to be kept at right angles to the saddle in the pass, and the openings kept as narrow as possible. Opening these runs would spill a great quantity of cold air from the upper basin down the treeless slopes. The result would be an increase in the plants that compete better in a cold environment, such as beargrass and Cascade huckleberry. The dwarf bramble, rusty menziesia and Alaska huckleberry would most likely be eliminated from these openings.

Subalpine Setting (Hogback Basin)

The consequences of implementing an alternative for development in Hogback Basin (4, 5, 6 or 7) have mainly to do with the acreage of snow groomed and the significance of ground disturbance. Snow grooming would hold snow longer in the spring, thus shortening the growing season for the low-lying vegetation. Cascade huckleberry, red mountain-heath, smooth woodrush, and sedge would begin to successfully dominate the open glades. Big huckleberry would slowly lose its competitive edge. Ground disturbance would create an environment where revegetation would be slow due to the fragility of this area's ecosystem. Sedge would be the first to respond in revegetated disturbed places.

Alpine Setting (Hogback Ridge)

This is a setting of low shrubs and forbs where impacts would be similar to those in the subalpine setting but would be even more long-term. Revegetation would be extremely slow and difficult.

MITIGATION

Prohibit salting of the ski runs in the expansion areas of lifts 5, 6 and 7. Also see mitigation for construction projects: under "Recreation" for chair lift facilities, "Public and Support Systems" for buildings and utility lines, and "Transportation" for roads and trails.

TIMBER

Only alternatives 3, 6 and 7, which include construction of Chair Lift 7, involve removal of significant quantities of commercial timber. Lift line, ski runs and access roads would require removal of about 60 acres of old-growth timber. At 35 mbf/ac this would be 2100 mbf of material. Much of this is on steep hillsides and soil disturbance would cause adverse impacts (see Soils section, above).

Lesser amounts of timber would be removed for expansion of the parking lots, with full development (Alternative 7) eventually resulting in removal of 300 mbf. Scattered and isolated trees would be removed with development in Hogback Basin (Alternatives 4, 5, 6 and 7). These trees are not considered to have commercial value.

MITIGATION

Harvest trees in a manner or at a time that minimizes soil disturbance. (Helicopter or skyline logging or yarding over the snow.) (See also soil mitigation.)

Dispose of slash in a manner that considers ski grooming needs, visual quality objectives and soil protection measures. May include total removal, lopping and scattering, and burning.

SOCIAL AND ECONOMIC

The proposed expansion of the White Pass Ski Area would result in social and economic impacts to the east end of Lewis County, particularly to the community of Packwood, on which this section will primarily focus.

IMPACTS AND TRENDS

Any impacts would be directly related to the numbers of skiers attracted to the area and the extent of expansion. The level of impact would be partially determined by additional access that might be developed to meet some of the additional demand created by day skiers. At the same time, better access would make a one-day ski trip feasible for a greater number of skiers.

There would be a definite increase in demand for overnight accommodations, particularly during week-ends and holiday periods. (White Pass is planning to cater to the "mini-vacation" market, which should increase weekend and overnight use if successful.)

Impacts would vary by the expansion alternative selected and the percentage of demand that is created in either day or overnight ski use. In addition, expansion in any alternative would be phased in over time, spreading out and possibly lessening, the impacts.

These variables, combined with ongoing changes in the present economic situation, make the time frame and magnitude of impacts difficult to determine but the level of change would be greatest with Alternative 7. It calls for the most development. The change would be least with the "No Action" Alternative, Alternative 1.

A positive impact to the area would involve increasing demand for service-related businesses in the winter. This should smooth out the current cyclic nature of this demand which historically has been greatest in the summer. Such a stabilizing effect would attract more businesses and investors into the area.

To a certain extent, expansion of the service industry would have a ripple effect. It would create more demand for services and thus more jobs, which more residents would move in to fill and these people would in turn demand more services.

In this way the local economy would continue to shift away from timber-related industry.

PROPERTY VALUES

The effect on property values is an impact to be considered. Overall, values would probably increase, but any increases would be highest in the tract areas closest to White Pass and for riverfront , view and commercial property.

This change will have both beneficial and adverse impacts on the traditional population and its members' lifestyles. On the positive side, land would be more valuable if owners sold or otherwise used their equity. On the negative side, people could be displaced because of rising land values and increased taxes. This segment of the population may get shifted down the valley to areas where property values aren't as high and the lifestyle remains passive.

An impact that may be considered positive by some yet negative by others is that with expansion of the Ski Area the hubbub of activity typical of the summer would continue to a certain extent into the winter. This includes additional vehicles, pedestrian traffic, littering, sanitation needs, and an influx of people with different backgrounds and expectations.

In essence, the pace of activity would be maintained year-round rather than being relatively cyclic and peaking during the summer.

Citizens of Packwood have already expressed concern regarding the amount of traffic during certain times of the year. Commercial activity is centered along U.S. 12. It is the main route through town and has only two lanes. At some point this highway situation may have to change, which could involve establishing four lanes or left turn lanes, or possibly re-routing through traffic.

Requirements for public services such as law enforcement, emergency services, and water use and sanitation, would also increase. Some costs associated with this would be offset by direct and indirect revenues to the local community generated from additional local spending and rising property values.

The balance between anticipated public sector revenues and costs is difficult to determine. It is also difficult to define what impacts would be attributable to ski area expansion, especially considering the existing situation of growth. In addition, impacts would vary by alternative and would be affected by marketing strategies used by the ski area.

Another variable adding to the complexity of social and economic impact analysis is that revenue and cost comparisons are subject to government policy, which has a certain flexibility. Local government units can take a number of actions to assure that development of public services pay their way. These include transient room taxes, local sales taxes and development assessments (additional charges for water, sewer and road improvements).

SUMMARY

Change toward a service-industry-oriented community is already occurring in Packwood. This has resulted in rising land values and changes in overall lifestyle.

Implementation of an action alternative would contribute to these changes. Some residents would view this as positive, some as negative. Overall, the community seems to favor (or is indifferent to) such change as no formal opposition has arisen.

Increasing winter service activities would contribute to economic stability by eliminating the relatively cyclic economic situation and creating a balanced business climate.

The level of impact would vary by alternative. This along with all the other variables makes the magnitude of impact difficult at best to measure. Phasing in ski area expansion would spread most impacts out over time. Tools are available for local governments to foresee these changes, and to avoid or mitigate negative impacts such as the costs of additional public services.

Expansion of the Ski Area would make the area more marketable during all seasons. This would even out summer and winter demands on services. If summer demand continues its current growth alone, the service industry might grow anyway to meet this need, and incidentally be able to meet an increased winter need. In either case, the cumulative effect could be a full-season community, with a changed lifestyle, dependent on the service industry.

The above conclusions are also applicable to the Rimrock-Trout Lodge community and to a lesser degree to Naches. Slight impacts are anticipated for Yakima, but these would be minimal considering its size and diversity.

MITIGATION

Keeping in mind the number of possible actions available to local governments, it will be important for Ski Area management, local governments, and the Forest Service, to cooperate to recognize or foresee impacts on the community, if alternatives that favor expansion are implemented, and to correct them if possible.

ECONOMIC EFFECTS ON COMMUNITIES

Economic effects on communities were analyzed using the 1982 IMPLAN Model, incorporating data for Yakima and Lewis counties. The following expenditures were developed from estimates originally developed for the Early Winters Ski Area proposal, and adapted for White Pass using information gathered from the local ski area operation and area motel/hotel operators. The present 35% of destination (overnight) skiers was projected to increase to 45% with full development (Alternative 7).

TABLE IV-1, AVERAGE SKIER EXPENDITURE

IMPLAN Sector	Sector Name	1982 Dollars
502	Amusement and Recreation	$ 11.50 (Alpine) 5.00 (Nordic)
471	Hotels and Lodging Places	11.05
491	Eating and Drinking Places	5.51
——	Groceries and Food	2.97
493	Auto Repair and Service	1.57
462	Rec. Related Retail Trade	0.65
460	Rec. Related Wholesale Trade	0.53
506	Medical and Health Services	0.34
448	Motor Freight Transport	0.23
454	Communications	0.20
521	State and Local Gov't.	0.13
	TOTALS	$ 35.90 (Alpine) $ 29.40 (Nordic)

Using these expenditures per skier, the IMPLAN model was used to project additional employment and personal income that would occur when an alternative would be fully implemented, represented by the annual numbers of the skiers in the year 2000.

TABLE IV-2, ECONOMIC EFFECTS IN YEAR 2000, YAKIMA AND LEWIS COUNTIES

Alternative	Change in Employment from Baseline Alternative (Number of Jobs)	Change in Personal Income from Baseline Alternative (Millions 1988 Dollars)
1	—	—
2	25	.300
3	72	.851
4	86	1.016
5	160	1.886
6	155	1.827
7	228	2.701

BREAK-EVEN ANALYSIS

Break-even analysis for the White Pass Ski Area is demonstrated in the accompanying charts for each winter alternative. It is based on some of the evaluation criteria in "A Manual for Preparing Break-Even Analyses," Ted Farwell & Associates, Inc.

The current financial operation of the White Pass Company, Inc. was used as base data in all alternatives. Drastic changes in the financial operating policies of the White Pass Company are not foreseen due to the proposed expansion. The revenue per skier visit remains the same for all alternatives.

Each alternative develops many economic parameters: fixed expenses–costs that are committed regardless of sales; Semi-variable Expenses–costs that vary with both length and volume of ski season; Variable Expenses–costs which are tied directly to revenue; Depreciation–a non-cash operating expense; and, Cost of Capital–such as interest, taxes and capital payback.

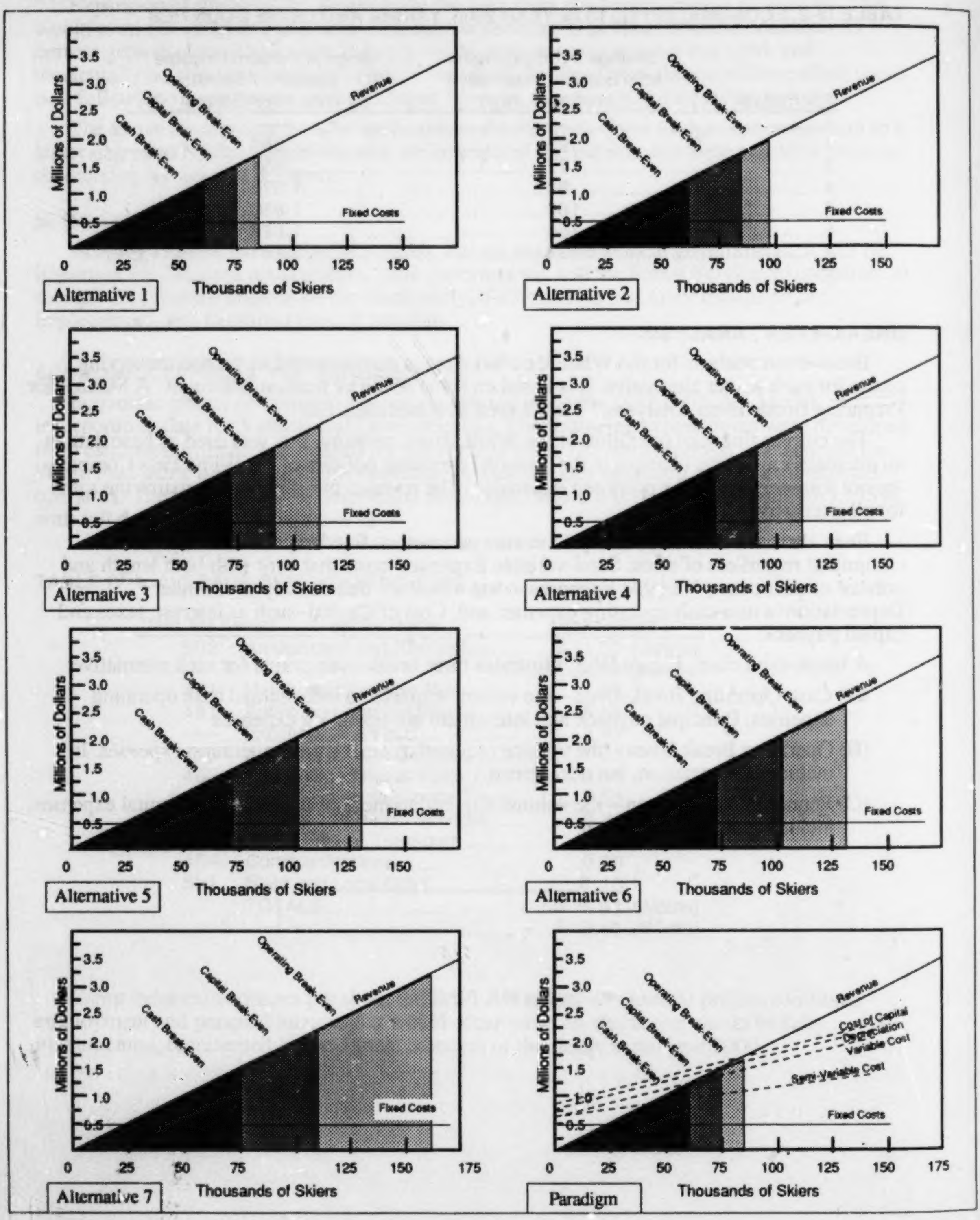
A break-even chart, Figure IV-2, illustrates three break-even points for each alternative:

(A) Cash Operating Break-Even – the volume required to meet annual cash operating expenses. Principal payback and interest are not operating expenses

(B) Operating Break-Even – the volume required to meet annual operating expenses. It includes depreciation, but not interest.

(C) Economic Break-Even – the volume required to meet all operating and capital expenses, including the cost of capital.

FIGURE IV-2, FINANCIAL BREAK-EVEN POINTS



Alternative 1

Alternative 2

Alternative 3

Alternative 4

Alternative 5

Alternative 6

Alternative 7

Paradigm

OTHER RESOURCES

VISUAL

The existing ski area and proposed expansion alternatives are located within an area of land identified as Management Area Category 2L, Developed Recreation, in the Proposed Land and Resource Management Plan for the Gifford Pinchot National Forest. The Visual Quality Objective (VQO) associated with the Management Area Category is Retention. This objective applies generally to all developed recreation sites on the Forest, from picnic sites to interpretive sites to campgrounds. Although it is applied to such developments as ski areas at this time, neither this Retention objective nor the Basic Visual Resource Management system is designed to address major developments or significant structures, both of which are characteristic of ski area development.

With ski areas, the ski runs, lift lines and associated facilities should be designed and located so as to minimize the impact on visual elements such as form, line, texture and color. The element of size or scale, and the presence of various structures, are usually the factors that make it impossible to meet standards for Retention, whether as viewed from foreground or background.

In the case of smaller projects, the objective may be to modify the project so as to minimize its visibility and maintain the visual attractiveness of the surrounding environment. The project area remains subordinate to the visual character of the area surrounding it.

Ski areas may dominate the visual character of the land in some places. However, part of the attractiveness of a ski area is the variety or diversity of the terrain and vegetation. Therefore, every effort is made to integrate the development of runs, lift lines, materials, color schemes, etc., into a total visual package. With good planning and execution this can result in an attractive ski area in an attractive environment. But it will seldom appear completely "natural" and it will seldom meet the Retention objective. The Partial Retention objective can frequently be met through the correct location of facilities, natural colors and attention to natural shapes and arrangements.

VISUAL CONSEQUENCES

[Refer to "Visual Resources," Chapter III, and see visual resource maps, Figures III-8 (EVC), III-10 (VAC) & III-11 (VQO).]

ALTERNATIVES 1, 8(S), AND 9(S)

The existing visual condition of the ski area would still change somewhat over time due to the growth of existing vegetation as well as the decline of other vegetation. Generally, its visual quality will soften and improve.

ALTERNATIVE 2

Some minor modification of the visual character of the existing area would take place due to the improvement activities planned with this alternative. This modification would be temporary, caused by vegetation and soil disturbance during the removal or relocation of existing facilities in Areas 2, 3 and 4 (see EVC map, Ch.III). The exception to this would be the effects of the additional ski run west of Chair Lift 4 and the construction of Chair Lift 8.

Visual impact to the portion of Area 4 that is in the existing area would result from the construction of the additional ski run west of Chair Lift 4. This run would not be visible from Highway 12 but could be seen from certain viewpoints in the William O. Douglas

Wilderness. This impact would be very subtle as the proposed run would blend with the existing runs served by Chair 4.

Chair Lift 8 would be constructed in parts of Areas 2 and 3. These areas are visible from the highway, the base area and the vicinity of Leech lake. Portions of this lift would also be visible through the vegetative screen along the Pacific Crest Trail.

ALTERNATIVES 3, 6 AND 7

Chair Lift 7 and its associated ski runs would be constructed almost entirely in Area 1 with only short sections of the upper end of the lift and runs being in Area 5.

As Area 1 has the lowest Visual Absorption Capability (VAC), the impact of this alternative would be quite severe. Although the area is not constantly observed from U.S. 12 due to the timber stand adjacent to the highway, there are several open view areas where the clearings will be visible.

[See Figures IV-4—IV-7 for computer simulated views for these alternatives, and Figure III-9 for a simulation of an existing view. Figure IV-3 indicates approximate viewpoints for the simulations. Note: these renditions have the foreground vegetation screens removed.]

The landscape would be modified as observed from various viewpoints in the William O. Douglas Wilderness. The portion of the lift and runs that are in Area 5 are not visible from Highway 12 but may be visible from certain viewpoints along the PCT. In most instances the visitor's attention would be focused on viewing Mount Rainier, and, with the use of unobtrusive colors for the towers and the presence of vegetative screening, the lift would blend well with the landscape. The ski run in this area would also blend well as very little vegetation removal would be needed.

The short access road, turnaround and pickup point near the lower terminal of Chair Lift 7 would have to be carved out of the timber adjacent to U.S. 12. This impact could generally be softened by locating these facilities so there is a vegetative screen between them and the highway.

ALTERNATIVES 4, 5, 6 AND 7

These Alternatives all deal with the construction of chair lifts, the clearing of ski runs and the construction of the mid-mountain warming hut.

The visual impact of activities taking place in Area 5 (Hogback Basin) are only significant as viewed from sections of the Pacific Crest Trail. There would be very little clearing needed for ski runs in the Basin due to the natural openness that presently exists. The most significant vegetation disturbance would take place with the construction of the extension of the catchline road, the service road from the base of Chair Lift 4 and the mid-mountain warming hut. This construction would be viewed downhill by trail users and, due to the oblique angle of the view and the distance, would be mostly screened by existing foreground vegetation.

The lift towers, cables and the presence of skiers would be the most significant visual impacts within the basin during the ski season. These impacts could not be avoided.

Due to the distance and the angle as viewed from the William O. Douglas Wilderness, activities in the Hogback Basin would be unobtrusive to the Wilderness visitor.

ALTERNATIVE 10(S)

This alternative would effect the visual quality of the entire area by the introduction of more people.

MITIGATION

Maintain vegetative screen between Highway 12 and the base facilities for Chair Lift 7. Where adequate screening does not exist, plant trees to establish it.

To the degree possible, feather edgelines of clearing for Chair 7 lift line and ski runs. Utilize landscape architect's skill when planning clearings.

Use unobtrusive colors for facilities.

WILDERNESS

Proposed expansion alternatives would affect Wilderness to varying degrees depending on several factors. Actions which affect adjacent Wilderness are those which increase use beyond managed levels, physically impact facilities (e.g., trails, camp spots and picnic locations), result in changes to the natural environment within Wilderness, or decrease the public's opportunity for pristine types of recreation, unique scenery or scientific, historic or educational experiences.

IMPACTS - GENERAL

Summer lift operations and other activities which increase use would increase Wilderness impacts, both social and physical, while activities which do not increase use or impacts beyond present standards would be acceptable.

Visual impacts to Wilderness users can result from activities inside and outside of Wilderness. For example, one can see into the proposed expansion area from the Wilderness boundary between the chair lift trail junction and Hogback Ridge. Activities altering the natural views from Wilderness areas or boundaries would adversely impact the user's opportunities to experience solitude and decrease the opportunity for challenge and inspiration. Activities which do not significantly alter the Wilderness or views from it would have no adverse impact.

The Miriam Basin and the Shoe Lake Basin areas would be most impacted by Alternatives 4 through 7. These areas are in the "Semi-Primitive" Wilderness Recreation Opportunity Spectrum (WROS) zone classification. The standards for this classification are:

- Concentration of users is low but there is often evidence of other users. Standards are controlled with a minimum of on-site controls.
- Moderate opportunity for exploring and experiencing isolation (from the sights and sounds of people);...a natural environment that offers a moderate to high degree of challenge and risk.
- Social standards: Up to 12 encounters [with people] per day. Group size can range up to 12 units (Forest order), with approved exceptions allowed where encounters drop below 6 per day.
- Off-site evidence of controls: management control necessary to protect the ecological and social elements throughout the Region's Wilderness are evident outside of Wilderness and at trailheads and boundary portals. Formal regulations, orders, and/or permits may be necessary to achieve management objectives.

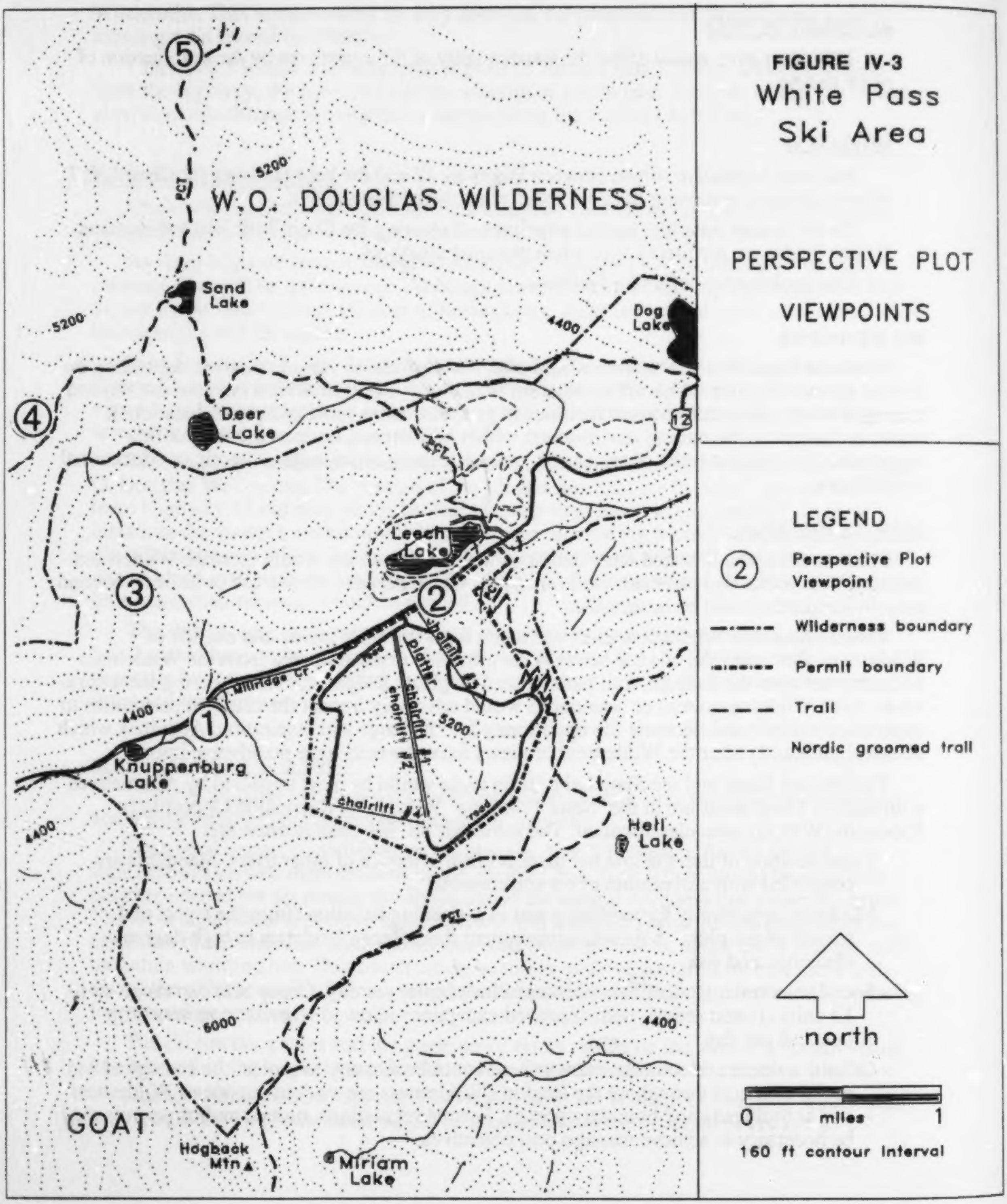


FIGURE IV-3
White Pass Ski Area

PERSPECTIVE PLOT VIEWPOINTS

W.O. DOUGLAS WILDERNESS
GOAT
PCT
5200
4400
6000
Sand Lake
Deer Lake
Dog Lake
Leech Lake
Knuppenburg Lake
Hell Lake
Miriam Lake
Hogback Mtn
Millridge Cr.
12
road
platter
chairlift #1
chairlift #2
chairlift #3
chairlift #4
①
②
③
④
⑤
LEGEND
② Perspective Plot Viewpoint
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
north
0 miles 1
160 ft contour interval

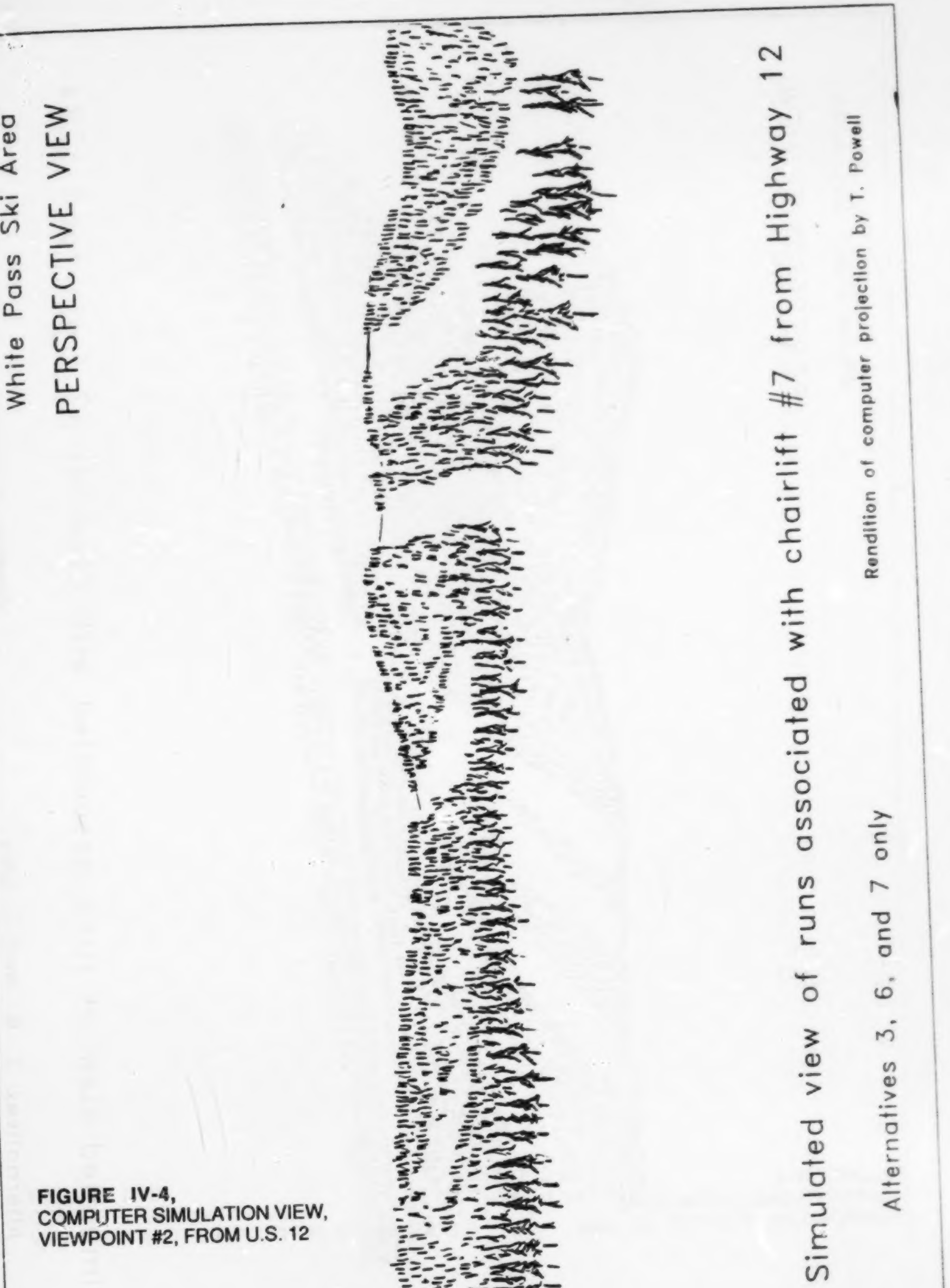

White Pass Ski Area
PERSPECTIVE VIEW
Simulated view of runs associated with chairlift #7 from Highway 12
Alternatives 3, 6, and 7 only
Rendition of computer projection by T. Powell

FIGURE IV-4,
COMPUTER SIMULATION VIEW,
VIEWPOINT #2, FROM U.S. 12

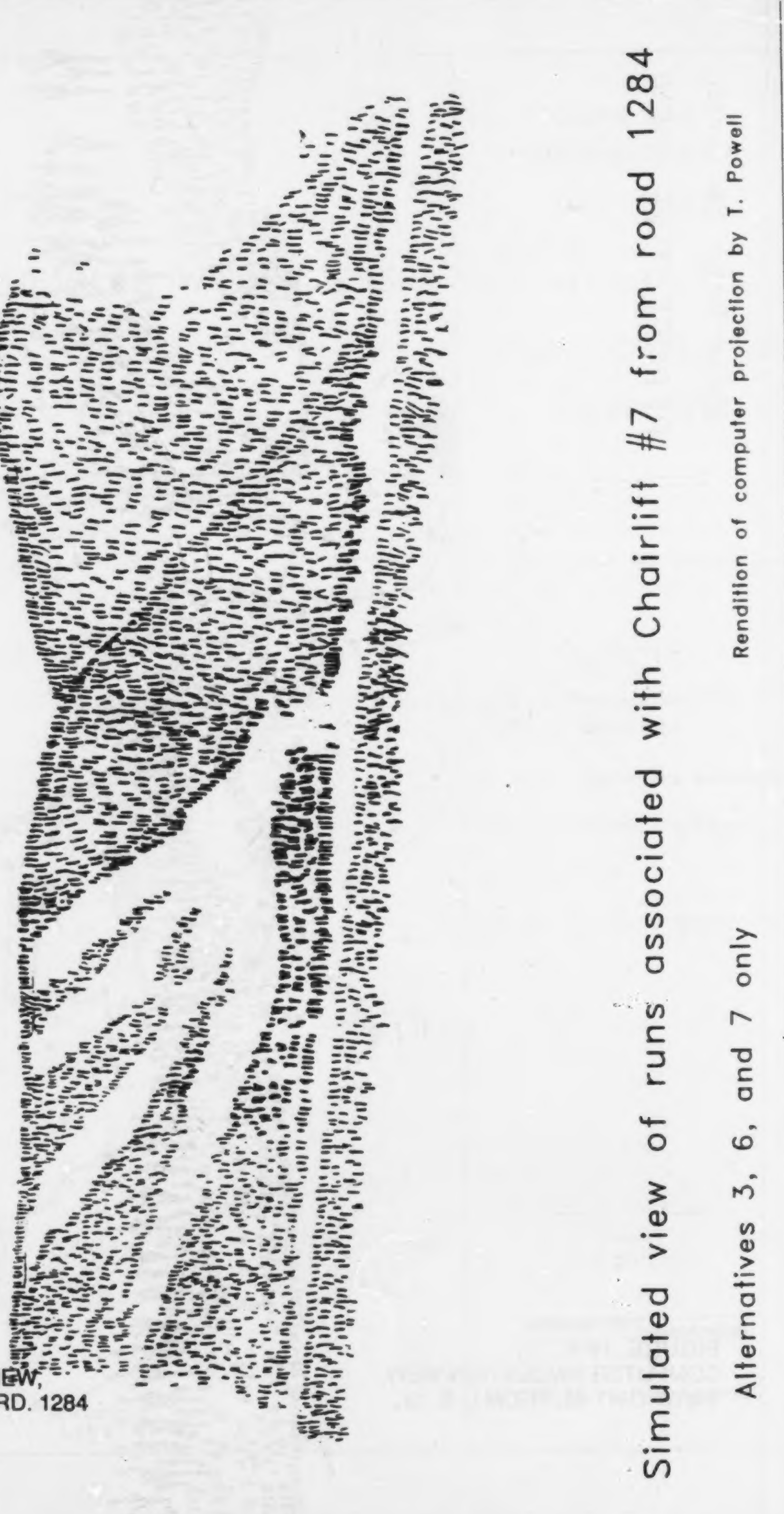

White Pass Ski Area
PERSPECTIVE VIEW
Simulated view of runs associated with Chairlift #7 from road 1284
Alternatives 3, 6, and 7 only
Rendition of computer projection by T. Powell

FIGURE IV-5,
COMPUTER SIMULATION VIEW,
VIEWPOINT #3, FROM F.S. RD. 1284

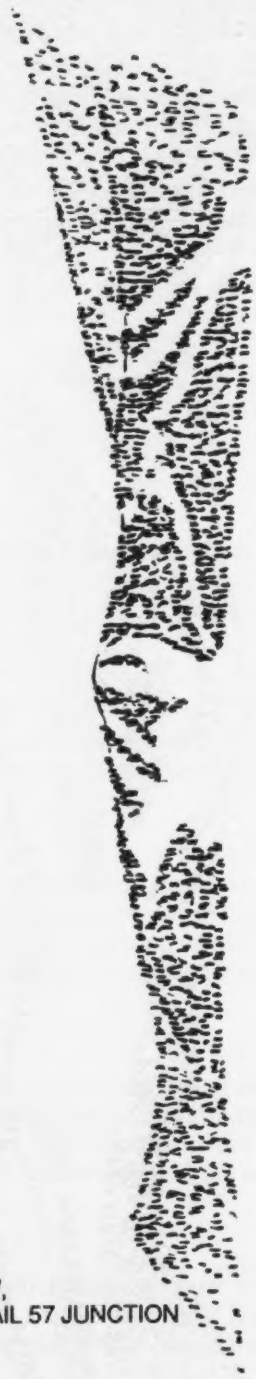

White Pass Ski Area
PERSPECTIVE VIEW
Simulated view of the ski area from the PCT and trail #57 junction
Alternatives 3, 6, and 7 only
Rendition of computer projection by T. Powell

FIGURE IV-6,
COMPUTER SIMULATION VIEW,
VIEWPOINT #4, FROM PCT/TRAIL 57 JUNCTION

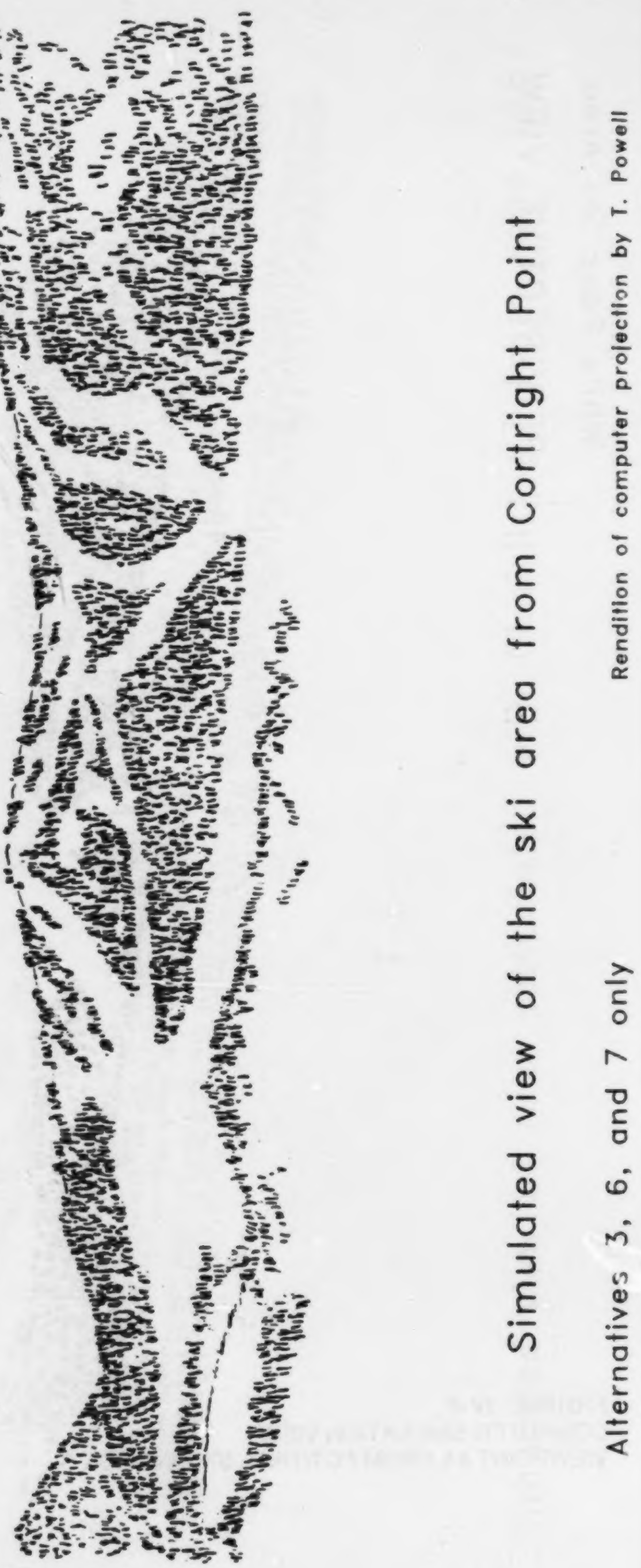

White Pass Ski Area
PERSPECTIVE VIEW
Simulated view of the ski area from Cortright Point
Alternatives 3, 6, and 7 only
Rendition of computer projection by T. Powell

FIGURE IV-7,
COMPUTER SIMULATION VIEW,
VIEWPOINT #5, FROM CORTRIGHT POINT

The construction of Chair Lifts 7 and 8 and the mid-mountain warming hut would not significantly change the visual character of the Hogback Ridge and Basin area for Wilderness or PCT visitors. Construction of lifts 5 and 6 would alter the feeling of solitude for summer and winter users entering or leaving the Wilderness along Hogback Ridge. Because of the views from, it that portion of the Crest Trail is an integral part of the Wilderness user's experience in this area.

Dominant views into the proposed expansion area are not offered from the William O. Douglas Wilderness. Winter ski touring in these areas is significantly less than on Hogback Ridge, except at Cortright Point, a winter nordic destination.

Changes in use resulting from adjacent development should be watched for through ongoing monitoring. If monitoring shows impacts caused by adjacent activities, those activities would need to be modified by nature or type to ease impacts back to acceptable standards.

Potential Wilderness impacts from permitted activities would be mitigated by permittee signing, with management plans, through interpretation, by instruction to users and with Forest Service regulations.

The impacts to the Goat Rocks Wilderness in the Hogback Basin area are discussed below by alternative. They would be primarily to PCT users entering or leaving the Wilderness.

IMPACTS - BY ALTERNATIVE

ALTERNATIVES 1 AND 8(S)

Physical impacts which exceed present standards at Shoe Lake were first noticed before 1950. By 1972 a camping and campfire closure order in this basin was signed to reduce those impacts. In 1979 and 1986 the Forest Service implemented revegetation projects to further improve the lake shore conditions.

Summer operation of Chair Lift 1 contributes some use to the Pacific Crest Trail, Hogback Ridge and Shoe Lake. This use does not exceed Wilderness Standards.

These alternatives would probably result in a slight increase in summer and winter use but should not exceed the normal increase in adjacent, non-chair lift served trails.

ALTERNATIVE 2

Winter ski touring use of Hogback Basin would probably continue to increase. This would generate proportional increases within Goat Rocks Wilderness. The point at which Wilderness standards are being exceeded would be reached sooner than with Alternative 1. Summer use impacts could result from this alternative.

ALTERNATIVE 3

This alternative should not increase winter or summer use in Goat Rocks Wilderness more than Alternatives 1 or 2 would. Summer opportunities for solitude would not be impacted within or adjacent to Wilderness along Hogback Ridge, and the Wilderness user's views in and adjacent to Wilderness would not be significantly affected.

ALTERNATIVE 4

This alternative would increase winter use in Hogback Basin and result in increased Wilderness uses in Miriam Basin, Shoe Lake Basin and areas south. It would affect some adjacent views for summer and winter (ski touring) Wilderness users significantly, and decrease the Wilderness user's opportunities for solitude and alter the feeling of a natural setting.

ALTERNATIVE 5

This alternative has potential to impact Wilderness users entering and leaving Wilderness via Hogback Ridge to a greater extent than Alternative 4. The addition of Chair Lift 6 would further alter the view from within the Wilderness.

ALTERNATIVE 6

The impacts to Wilderness resources by this alternative would be slightly less than with Alternative 5 due to the reduced visual impact of one less lift line in the upper Hogback Basin.

ALTERNATIVE 7

The impacts of activities associated with this alternative would not be significantly different from Alternative 5. Winter uses in and adjacent to Wilderness would be increased and views from within the Wilderness would be impacted as in Alternative 5. The solitude and feelings of remoteness would be decreased for summer and winter users.

ALTERNATIVE 9(S)

This alternative could significantly reduce summer use along Hogback Ridge, both on the Pacific Crest Trail and within Goat Rocks Wilderness at Shoe Lake.

ALTERNATIVE 10(S)

This alternative has the potential to reduce summer use within Goat Rocks Wilderness. If trails were constructed to draw occasional users away from Wilderness, if tie trails did not encourage PCT use, and if signing and other management activities offered viable alternatives to chair lift riders (e.g., some destination other than Shoe Lake), Wilderness use could be reduced. However, if summer recreational opportunities were developed around existing trail structures and areas, Wilderness use could increase more than with Alternative 8(S).

MITIGATION

The Forest Service would develop summer and winter baseline use and impact data for the Wilderness (Shoe Lake and Miriam basins) in order to monitor and evaluate use from the Ski Area. (Other aspects of mitigation of Wilderness impacts are covered under "Transportation", "Trails" and "Recreation.")

CULTURAL RESOURCES

Archaeological surveys of the proposed expansion area found no cultural sites. This does not rule out the possibility that some exist, but they are certainly not abundant.

Yakima Indian Nation members have expressed the feeling that the cultural and spiritual values of the area are more than actual sites and any additional use and disturbance concerns them. They are concerned about the general area from Rimrock Lake to White Pass and the

Goat Rocks. All forms of recreation are increasing in this area and this trend will continue regardless of the alternative chosen.

The direct effects of implementing the alternatives are summarized below. Philosophically, any additional use or development could have an adverse effect on Indian cultural and/or spiritual values. Significant elements of the Indians' concerns seem to be:

YAKIMA NATION CONCERNS

Cultural Sites

Though the presence of some isolated sites is a possibility, no sites have been found. Potential locations are more likely in areas more suitable for the presence of people, that is, in Hogback Basin rather than on steep, timbered areas like the Knuppenburg lift area. The more ground disturbed in Hogback Basin, the greater the potential for finding a cultural resource site.

If no sites exist, there would be no effect from implementing any alternative. Alternatives 1, 8(S) and 9(S), with their reduced use levels, could possibly have a positive effect. Alternatives 2 and 3 would have little effect. The greatest potential adverse effects would be from Alternatives 5, 7 and 10(S), with their full development of Hogback Basin and increased summer activities. Alternatives 4 and 6 would have intermediate effects from partial development of the Basin.

Cultural surveys would take place for all new ground-disturbing activities. These surveys would help to determine what historic or prehistoric activities took place in the area. Their findings would be made available to the Indian Nations and could help substantiate past use of the White pass area. Depending on the desires of the Indian Nations, these findings could be interpreted at the White Pass Day Lodge or elsewhere.

Spiritual Sites

The same effects hold here as in the discussion on cultural resource sites. The greatest likelihood for sites is on Hogback Ridge and in the Basin, although no evidence was found.

Berry Picking

Huckleberry picking is a traditional activity and one of the primary reasons native Americans would have been in the White Pass area. Fire prevention practices over the last 80 years have encouraged encroachment of tree species and reduced the extent of huckleberry fields. (Although natural fire was a rare occurrence in this area, it is suspected that native Americans periodically burned the fields, a practice that stopped with fire prevention.) Clearing for ski trails and lift lines can actually reverse this trend.

Alternatives 1 and 2 and the three summer strategy alternatives, (8[S], 9[S] and 10[S]), would allow the current ecological trend to continue for further reduction in huckleberry fields. Alternative 3 would result in huckleberries becoming established in the clearings of Chair 7. Alternatives 4—7 would cause a slight increase in berry bushes due to minor clearing in Hogback Basin.

Root Crops

Indians also came to the mountains to harvest root crops such as camas. These were primarily found at lower elevations. No plants known for their value as root crops exist in the study area. All alternatives have no effect on this element.

Cedar Products

Use of cedar bark for clothing and baskets was important to the Indians. Large Alaska yellow cedars exist around Leech Lake and Knuppenburg lake. These trees will not be substantially depleted with any alternative. Chair Lift 7 (Alternatives 3, 6 and 7) and increased clearing for parking and drain fields (Alternatives 5, 6 and 7) would remove some cedar and have a potential adverse effect. Other alternatives would have no effect.

Hunting and Fishing

Hunting and fishing were and are important reasons for coming into this area. This is not an anadromous fishery. Only native fish species are present and these have largely been replaced by planted stock. Hunting opportunities are possible throughout the area. [Specific effects on animal resources are discussed in the "Fish and Wildlife" section.]

SUMMARY

The environmental consequences of any of the alternatives on the cultural and spiritual aspects involved in the proposed development area, become a philosophical issue. The cultural surveys conducted by a professional archaeologist under contract to the White Pass Company failed to discover any site-specific evidence of Native American use of the area. These surveys and record searches were reviewed by professional Forest Service Archaeologists and were found to be accurate and thorough. Members of the Cultural Committee of the Yakima Indian Nation indicated their main concern was that any development from Rimrock Reservoir to White pass would adversely effect the area's cultural and spiritual meaning and its naturalness, and would tend to bring more use to the area. This use will continue to grow with or without additional development and will tend to cause additional impact on the boundaries of the Yakima Indian Nation.

The above analysis indicates that Alternatives 7 and 10(S) would have the most effect on the cultural and spiritual aspects of the area while the other alternatives would have less. Unless specific archaeological evidence is found between the writing of this DEIS and the FEIS, cultural values may no longer be an issue. We may then focus on the long-standing controversy between the Indian Nations and public land managers over development.

LAND USE AND REGULATION

No special requirements or restriction were noted by either the Yakima or the Lewis County Planning Departments. Appropriate permits will be required for any construction.

Management of the National Forest land will be governed by both the Gifford Pinchot and the Wenatchee Standards and Guidelines (Appendix E). The direction is similar but the Wenatchee Standards apply to the east side and the G-P Standards to the west side of the Cascade Crest. Proposed management direction is shown in Figure II-A, page II-6.

These Standards and Guidelines are supplemented by the mitigation measures listed in Chapter II and the specific mitigation measures listed in this chapter.

RECREATION

EFFECTS ON WINTER RECREATION

ALTERNATIVE 1 (NO ACTION)

This alternative maintains the status quo. The opportunities for winter recreation would remain as they are now. No chairlifts would be added, no additional ski terrain would be served by lifts or groomed, and no additions would be made to the existing groomed nordic trail system. There would be no development in Hogback Basin. However, use of the Basin would probably increase over time in response to the publicity the area has been receiving and to the general growth of nordic, especially backcountry, skiing. White Pass Company does not plan to accommodate "tubers" and the area does not generally serve the snowmobile community.

ALTERNATIVE 2

This alternative would allow realignment of Chair Lift 3 and add Chair Lift 8 along the eastern margin of the existing permit area. Approximately 5 kilometers of groomed nordic trails would be added to the present system. Although this alternative adds no terrain to the alpine ski area, it would add and enhance recreational opportunities for the beginning downhill skier by improving the quality of existing beginner runs.

ALTERNATIVE 3

Additional recreational opportunities for the advance alpine skier would be achieved through this alternative. Advance downhill terrain would increase from 60 to 100 acres, a 70 percent increase. Intermediate ski terrain would increase from 185 to 205 acres,a 10 percent increase for the intermediate downhill skier. Groomed nordic trails would be increased to 20 kilometers.

ALTERNATIVE 4

Additional recreational opportunities for the beginner and intermediate alpine skier would be a result of this alternative. It increases acreage of beginner and intermediate downhill terrain by approximately one-third. There would be no increase in terrain for the advanced skier. Groomed nordic trails would be increased to 25 km.

This alternative would place one chair lift in Hogback Basin. This would decrease opportunities in the Basin for some backcountry skiers, especially the day tourer, the non-groomed trail tourer and the non-lift-served telemarker. Three hundred acres of Hogback Basin would remain free of groomed runs. The lift-served telemark skiers would have opportunities enhanced as they would be able to make several more runs in a skiing day. Chair Lift 5 would also provide easier access to adjacent backcountry, especially to Miriam and Shoe Lake Basins, thereby increasing opportunities for backcountry skiers (telemarkers, day tourers and extended tourers).

ALTERNATIVE 5

This alternative would nearly double the amount of terrain available for the beginning skier while increasing intermediate ski terrain by 50 percent. There would be no increase in opportunity for the advanced alpine skier.

Two hundred thirty-five acres of Hogback Basin would remain free of groomed runs. Two chair lifts would be built there to make the terrain accessible to the alpine skier. Backcountry skiers would lose much of the recreational setting due to the presence of chair lifts and groomed runs in the Basin. The day tourer and others currently using Hogback Basin would be displaced to other areas to find the terrain and experience they seek, possibly to north of U.S. 12 in the William O. Douglas Wilderness. However, the additional chairlifts would provide easier access to the adjacent Miriam and Shoe Lake basins for the advanced backcountry skier, especially the extended tourer and the ski mountaineer. Lift-served telemark skiers would also benefit from the lifts in Hogback Basin as they would be able to "yo-yo" the slopes.

Additional people, groomed runs, and lifts in Hogback Basin would also decrease the opportunities there for the snowshoer although, again, they'd also benefit somewhat from the ease of access to the Goat Rocks Wilderness. The groomed nordic trails would remain at 25 kilometers.

ALTERNATIVE 6

This alternative would increase winter recreational opportunities for the beginner and intermediate skier by a third and available ski terrain for the advanced skier by almost 70 percent. The impact on the backcountry skier, lift-served telemarker and snowshoer would be as in Alternative 4. Groomed nordic trails would be 20 km.

ALTERNATIVE 7

This alternative would increase skiable terrain for the beginning skier by 80 percent, for the intermediate skier by 60 percent, and for the advanced skier by 70 percent. Groomed nordic trails would be 25 km. The environmental consequences of this alternative on backcountry skiers, snowshoers and lift-served telemarkers would be as in Alternative 5.

These relationships are summarized in Figures IV-8 and IV-9

MITIGATION

Snow grooming would be restricted to blocks or areas in the Hogback Basin area (see Alternative maps, Figures II-1—7) to retain some of its unique setting for backcountry nordic skiers.

CHAIR LIFT CONSTRUCTION IMPACTS

Lift installation would require the excavation of soil and rock for lift tower foundations. Soil around the tower site would be disturbed and probably compacted. Some areas of exposed, unprotected, unvegetated soil around the tower sites would be subject to erosion. However, the impact is not felt to be significant. Restrictions on the transportation of workers and equipment is discussed in the previous section.

It is proposed to install lift towers and string cables using helicopters. Noise from the helicopters would be a potential physical impact for the users of the adjacent Goat Rocks Wilderness.

Clearing of lift lines and for ski runs could have an adverse impact on the visual resources. Little clearing is needed in Hogback Basin, but clearing for Chair Lift 7 and runs would be in dense, mature timber.

Mitigation

Immediately reseed and revegetated disturbed soils (see road construction section). Require hand digging of tower foundations to reduce the area disturbed, with topsoil saved to be re-placed.on disturbed areas. Scatter excess material removed from tower foundation holes.

Require helicopter installation for lift construction, with helicopters restricted to areas outside Wilderness. Also, allow no flights during high-use weekends and holidays.

Clear as little vegetation as possible in Hogback Basin. Leave as much vegetation as possible under the lift lines while still meeting safety requirements. Add no additional lines to the visual landscape. Allow removal of conifer invasion of glades with prior approval,

FIGURE IV-8, ALPINE USE OF SKI AREA

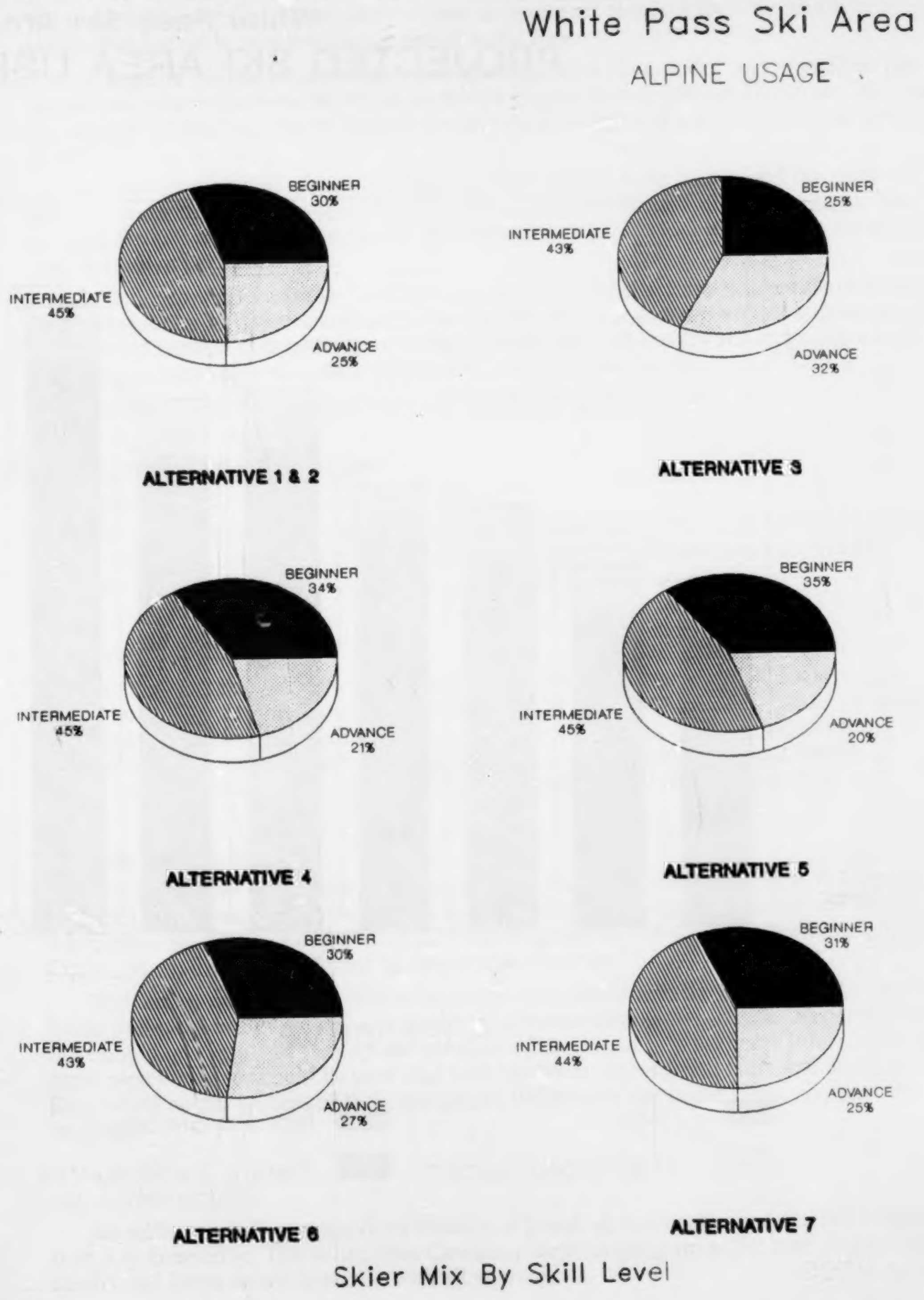
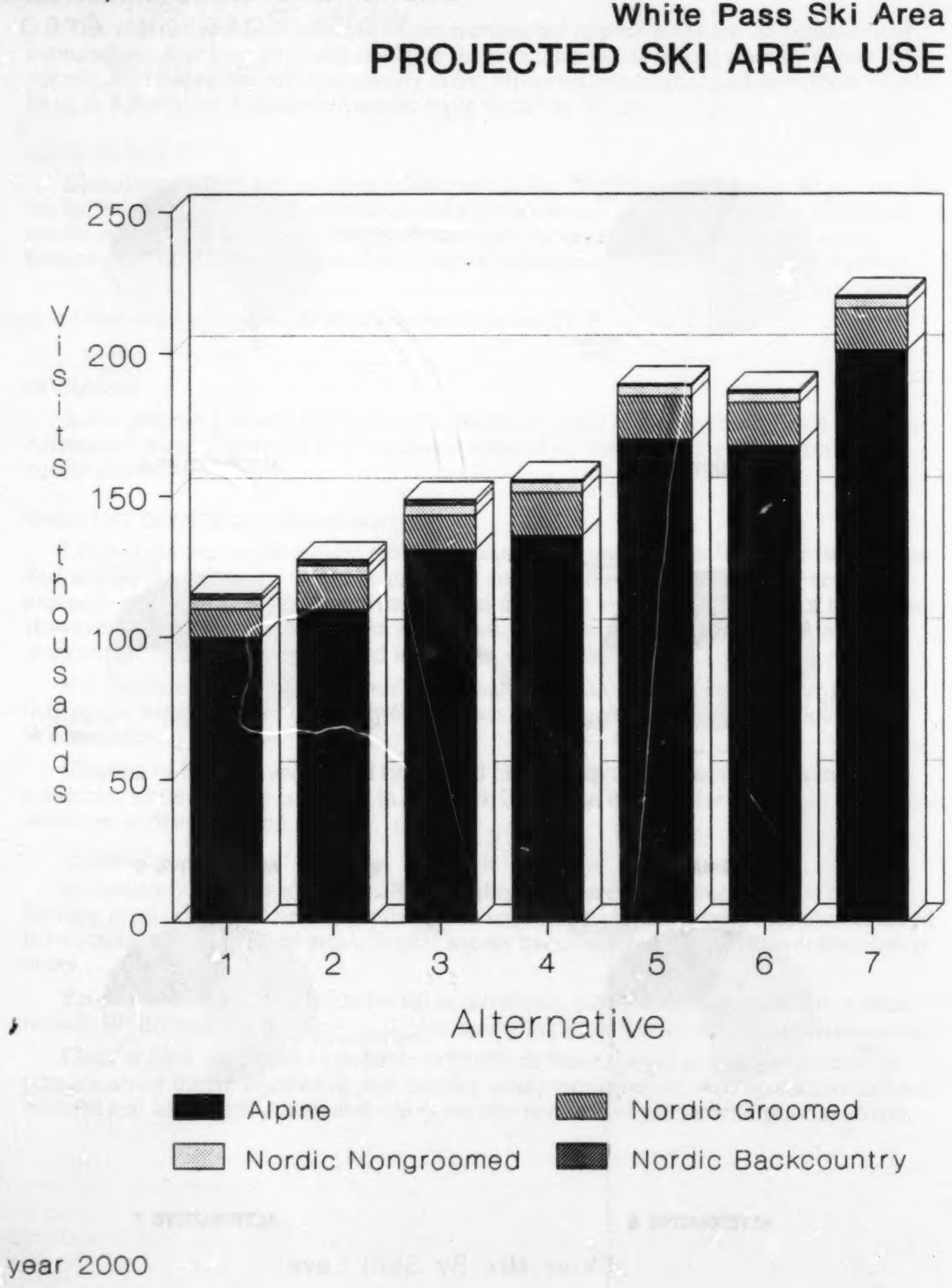


FIGURE IV-9, WINTER RECREATION EFFECTS



but require low stumps and removal of trees to approved disposal sites. No slope recontouring for ski runs would be permitted in the Basin.

Require the use of perspective plot techniques for Chair Lift 7 and associated runs to minimize the impacts on the visual resources as seen from Highway 12 and the William O. Douglas Wilderness. To the degree possible feather edges of cut lines to soften the edge effect.

Use non-ground/duff disturbing logging methods. On steep slopes, lop the slash and leave to break the flow of water. Flush-cut trees and leave stumps in the ground to "bind" the soil. Ensure operator meets all fire requirements, such as spark arrestors on equipment and shutdown periods.

Approve specific locations for upper towers of Chair Lifts 5 and 6. Care must be taken to prevent dropping skiers too close to the area boundary in order to reduce impacts on the PCT and to provide efficient access to the ski runs. Paint all towers and terminals a color blending with the area, i.e., dark olive as discussed in Chapter III.

Require underground power lines and electrically-powered lifts.

EFFECTS ON SUMMER RECREATION

ALTERNATIVE 8(S)

The current situation would continue with this alternative. The chair lift would take passengers to Pigtail Peak. Present trends in use, including Wilderness use, would continue. No interpretive trail would be constructed in Hogback Basin.

ALTERNATIVE 9(S)

With this alternative steps would be taken to reduce pressures on Wilderness. One would be to eliminate the summer chair lift rides. This would add 1,500 feet of vertical rise for people travelling to the upper areas, since they would start from the highway. Recreation use would decrease in the upper areas and also within the Goat Rocks Wilderness. No interpretive trail would be constructed in Hogback Basin.

ALTERNATIVE 10(S)

This alternative would enhance summer recreation opportunities outside Wilderness. A loop trail system would be constructed in Hogback Basin to supplement and aid the interpretive program. Use of Chair Lift 1 and Hogback Basin would increase significantly. Chair Lifts 5, 6 and 7 would not be operated in summer.

With active management, Wilderness objectives could also be enhanced. The Hogback Basin trail would offer the day-use public an alternate destination outside Wilderness and this should take some of the day-use pressure off Shoe Lake. Wilderness information and protection messages could be provided with handouts, signing and naturalist contacts. Depending on the success of these programs, Wilderness use could either decrease or increase.

ALL ALTERNATIVES

No additions in Forest Service Facilities at Leech or Knuppenburg lakes are proposed with any alternative. The White Pass Company summer program at the base area and the nordic trail loops would continue with all alternatives.

MITIGATION

If Alternative 10(S) is implemented the following mitigation measures would be required:

1. The Hogback Basin Interpretive Trail would be located away from the Pacific Crest Trail to discourage additional use on the PCT and into Goat Rocks Wilderness. The location should traverse through the natural diversity of the Basin and needs to include the spectacular views and panoramas.
2. The interpretive program would emphasize Wilderness management objectives. These objectives would be communicated through naturalist contacts and programs, signing and brochures.
3. If monitoring of the Wilderness shows unacceptable impacts that can be attributed to the White Pass summer program, this program would then be modified to bring the Wilderness impacts within acceptable limits.

TRANSPORTATION

HIGHWAY

The Washington State Department of Transportation (WDOT) reviewed the alternatives. Their response about consequences was:

> Our analysis determined that with the addition of the traffic generated by completion of the final phase of construction, peak Sunday traffic will exceed capacity. In addition, increased congestion will be experienced as traffic volumes increase through the phases of construction. While ultimately the roadway will be over capacity and traffic backups would result, the situation is considered tolerable. This is due to the increased traffic being of a weekend recreational nature and as such our design hour volume may well be the 200th hour. This would not be unusual for a recreational highway.
>
> The one factor that will need to be addressed is the need for additional room at chain-up areas. With the increase in traffic the present chain-up facilities will be inadequate. Further study will be needed to determine to what extent these areas need to be increased in size.

Also, the highway accident rate in the White Pass area is double the state average for this class of highway. Most accidents involve parked vehicles and vehicles entering and leaving the roadway. The uncontrolled nature of parking in this area will be aggravated by the projected increase in traffic.

MITIGATION

To mitigate highway impacts, the WDOT recommends studying the following actions.

1. Left turn channelization.
2. Off-highway parking for the additional skiers.
3. A physical barrier between the travelling public and cars currently parked along the roadway shoulder. (A clear zone of 24—30 feet is needed.)
4. Common access points to and from parking areas.

5. Encourage ski bus use from Yakima and Packwood to reduce total traffic.

Before a final recommendation is made,on-the-ground reviews and study would be needed.

ON-SITE ROADS

CONSTRUCTION IMPACTS – ROADS AND PARKING LOTS

Roads would be needed to service the mid-mountain warming hut and a catchline road would be needed at the lower (north) end of Hogback Basin if chair lifts are extended into this area. The parking areas would be extended as use levels increased.

The slope of the ground is gentle between the end of the existing road up to Pigtail Peak and the warming hut location, and the existing catchline road. Cutslopes would generally be low, less than 10 feet. The roads would cross some areas of wet soil, but the gentle slopes and shallow soils would preclude mass failure problems. The potential for increased runoff from the road surface and the concentration of the runoff also increases the possibility of erosion during periods when the ground is not covered with snow. Sediment from the eroded surfaces may be deposited in local streams and lakes (see discussion on soils).

Some soil compaction outside the road corridor is likely if construction equipment is allowed outside the corridors. In Hogback Basin, vegetative impacts would also result from even occasional vehicle use on snow-free ground. These impacts could be long-term and effect vegetative production.

Short-term air quality degradation from operation of equipment during construction would occur. This air pollution would be carbon monoxide exhaust from the equipment, and dust. Also, burning to dispose of slash would create smoke.

Noise from construction equipment, bulldozers, chainsaws, etc., would cause a short-term physical impact. People hiking the PCT and users of the Goat Rocks Wilderness would probably hear some of the construction activities.

Fuel spills during the refueling and/or transport of fuel for equipment could potentially occur. Oil spills from the changing of crankcase oil and filters could also occur.

MITIGATION

To avoid the potential effects of erosion and sedimentation, all fresh cuts into soil and rock materials would be reseeded, revegetated, and/or covered with erosion control blankets. Road and catchline grades should be kept to an absolute minimum. The roads should be outsloped and the surfaces immediately treated. Dr, Glen Klock recommends (in "Mission Ridge—A Case History of Soil Disturbance and Revegetation of a Winter Sports Area Development," 1973) the following measures.

1. Stockpile and redistribute topsoil after the final grading of slopes.
2. Carefully select plant species to be seeded. Native species should be considered over introduced species.
3. The soil should be tested for fertility to determine the need for fertilizer. If total nitrogen is greater than or equal to 0.2%, nitrogen is not needed.
4. Due to the short summer season typical at ski areas, plantings should be made immediately following the soil disturbance. They should not be delayed until after precipitation and wind have caused crusting of the soil. Irrigation may be helpful.
5. Apply a shallow cover of soil over the newly planted seed and fertilizer.
6. Apply mulch to maintain desirable moisture content.

7. Limit the number of recurring soil disturbances. ("Do the job right the first time.")
8. Monitor the planting for two growing seasons to determine their effectiveness. It takes two years before erosion control measures can be effective.
9. Periodically apply fertilizer to the plantings (every two to three years).

Limit construction equipment to the road prism or to specifically-approved parking sites. Allow only Forest Service approved motorized equipment off the roads and on snow-free ground in the Hogback Basin area. Allow no roads up lift lines and restrict the use of and the type of equipment on a case-by-case basis.

Implement dust abatement measures, should conditions warrant. Strictly enforce smoke management procedures if slash is to be burned. Where visually acceptable and where satisfactory for operations, lop and leave slash on the ground to prevent erosion.

Refuel and change crankcase oil only at approved environmentally non-sensitive areas. Require prompt cleanup of all construction debris.

Approve location and design of all roads before construction. The objective is to minimize physical and visual impacts.

TRAIL SYSTEM IMPACTS

PACIFIC CREST TRAIL

Location Criteria for the Pacific Crest national Scenic Trail include:

"Fit" the land in such a manner that the trail and the natural environment tend to complement each other.

Give the feeling the land mass is below the traveller rather than than above. The trail should follow the "crest" where feasible.

Complement the current or planned use of the land, and harmonize with the environment.

Generally avoid, or lead users away from, heavily used areas or those of potential congestion.

The Pacific Crest Trail Advisory Council reviewed the White Pass expansion proposal regarding the potential impact it might have on the PCT and responded:

> While the intent of the trail is to give the user a wilderness experience, there are many areas where the trail touches civilization.
>
> It is the conclusion of the PCTAC that since the impact with the proposed chair lift is minimal, and since a trail relocation would reduce the views of Mt. Rainier, to the northwest, that the trail should remain in its present location.

Relocation of about one-fourth mile of the PCT is proposed, however, in Alternatives 4, 5, 6 and 7 which include development in Hogback Basin. This would reduce the visual impact of the chair lifts as seen from the Trail, would correct some trail drainage problems, and would still maintain and improve scenic vistas.

MITIGATION

Realign PCT to reduce exposure to the Ski Area and to correct original location and design problems. The Forest Service would locate and design; White Pass Company would construct.

HOGBACK BASIN TRAIL

Soil disturbance would occur during construction of the proposed hiking trail in Hogback Basin (Alternative 10 [S]). Similar impacts can be expected for the proposed relocation of the Pacific Crest Trail. Additional impacts on the PCT would be expected if the two systems are not separate.

MITIGATION

Carefully locate trails to avoid steep grades and wet areas. Provide drainage control features such as culverts and water bars, and tread hardening techniques where needed.

Locate the Hogback Trail System away from the PCT to reduce conflicts and to encourage use outside Wilderness.

PUBLIC AND SUPPORT SYSTEMS

WASTE WATER DISPOSAL

ALTERNATIVE 1 (COMMON TO ALL ALTERNATIVES)

Continued maintenance and repair of the existing septic system. The condominium drain field requires reconstruction, which is planned for 1989. Work planned includes repair and replacement of the original clay tile drain field with a state-of-the-art drain field. The clay tile has separated at the joints between pipe sections due to settling. This has resulted in uneven dosing of the drain field, leakage, and surfacing of effluent. The condominium system will be enlarged as necessary to meet today's higher EPA and State of Washington DSHS standards.

ALTERNATIVE 2

See Alternative 1.

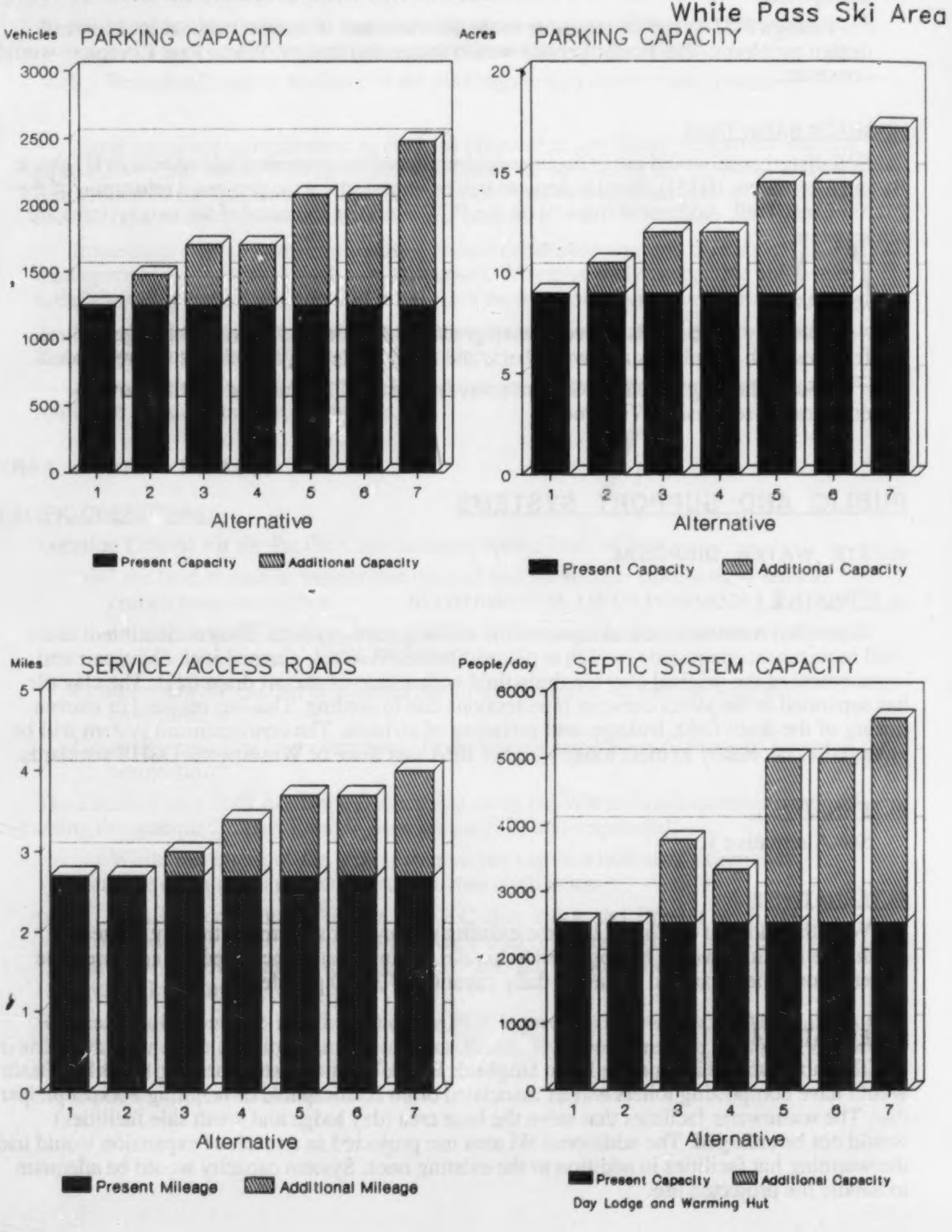
ALTERNATIVE 3

With the addition of Chair Lift 7 the existing wastewater system for the day lodge and south side facilities would be upgraded to handle the anticipated increased ski area use. The system would be expanded to have a daily capacity of 3,810 people.

ALTERNATIVE 4

This alternative adds a chair lift in Hogback Basin. The proposed warming hut in the Basin would have composting toilets and an associated drain field capable of handling 800 people per day. The wastewater facilities that serve the base area (day lodge and south side facilities) would not be enlarged. The additional ski area use projected as a result of expansion would use the warming hut facilities in addition to the existing ones. System capacity would be adequate to handle the projected use.

FIGURE IV-10, BASE AREA FACILITIES CHANGES



ALTERNATIVE 5

The south side (day lodge, etc.) wastewater facilities would be enlarged as described in Alternative 3. The warming hut facilities would be as described in Alternative 4. Wastewater system capacity would be greater than projected peak use.

ALTERNATIVE 6

The south side wastewater facilities would be enlarged as described in Alternative 3. Additional composting toilets would be added to the warming hut proposed in Hogback Basin to increase daily capacity to 1,200 people.

ALTERNATIVE 7

The south side wastewater facilities would be doubled. The composting toilet facilities in the warming hut would be increased to 1,800 people per day capacity.

The above facilities and others are summarized in Figure IV-10.

BUILDING CONSTRUCTION IMPACTS

The construction of the mid-mountain warming hut and assorted buildings associated with the lift terminals would require excavation and disturbance of soils. Again the impacts would be from the potential soil erosion from unprotected soils and compaction from the operation of construction equipment and vehicles. Litter could also be a problem at the construction sites.

MITIGATION

Require Forest Service approval of the specific location and design of the mid-mountain warming hut. Locate it to reduce visual and other physical and biological impacts.

Seed and fertilize all disturbed areas (see road construction requirements) and require prompt cleanup of all litter.

UTILITIES CONSTRUCTION IMPACTS

New electrical lines would be buried from the power sources to the drive terminals of the proposed lifts. Electrical control lines would also have to be dug from the bottom to the top of each lift line. The backfilled trenches could be a site of erosion and a precursor to channelization, especially where trenches are dug up steep slopes. Trenches would also be needed for other utility lines, such as water lines and effluent transport.

The water well proposed for the mid-mountain hut could also be a source of ground water or aquifer contamination if the well is not properly sealed.

MITIGATION

Bury power lines to the bottom of Chair Lifts 5 and 6, to the top of Chair 7 and to the warming hut within the road prisms of the catchline road (existing and proposed). Bury lift control cables by hand in shallow trenches.

Install collars on pipes to break the flow of water when pipelines are buried in steep slopes. Seed and mulch backfilled trench lines. (See road construction requirements.)

Adhere to State of Washington Department of Ecology regulations relating to drilling of water wells. Ensure that the drill hole casing is properly sealed at the surface and between aquifers.

PUBLIC SAFETY

As areas are added and developed and as skier use increases, the ski patrol will also expand to meet the increased need. These activities include treatment of accidents, avalanche control, search and rescue, and public information on skier courtesy. This is included in the operating plans and costs for White Pass Company.

Management of the ski area boundary becomes more important should expansion occur in Hogback Basin. Specifically, the boundary between the top of proposed lifts 5 and 6 and the Miriam Creek Basin would require either being roped and/or signed and/or having entry points. Entry points would be used only for safety and education purposes and should not be used as a deterrent to use. The boundary west of proposed lift 6, along Hogback Ridge, would follow the roped, signed and entry point process but would most likely require only signing. The catchline road ski trail would be a very obvious boundary between upper lifts 5 and 6 and lower lift 7. Before construction of the lower elevation lift, the catchline road ski trail would also be signed and/or roped.

For avalanche accidents and lost skiers occurring within the ski area boundary, initial action will be taken by White Pass Company, according to procedures outlined in the White Pass Company Search and Rescue Plan. For accidents or lost skiers outside the ski area boundary, but reported to the ski area, word will be passed immediately to the appropriate Sheriff's Office to secure a search and rescue mission number. The Forest Service shall be kept advised of all search and rescue operations.

MITIGATION

Implement Appendix F, the "White Pass Ski Area Boundary Management Guidelines." With approval of any of the expansion alternatives, these guidelines would reduce exposure of skiers to avalanche hazard adjacent to the ski area, reduce the possibility of skiers inadvertently leaving the area and becoming lost, and yet allow a reasonable degree of opportunity for a backcountry skiing experience.

Inform public about construction projects and impacts. White Pass Company to sign; Forest Service to issue media releases.

ALTERNATIVE COMPARISON

COMPARISON CRITERIA

The primary issues, concerns and opportunities were grouped into five Comparison Criteria. The environmental effects of implementing each alternative is displayed in this chapter. The alternatives are compared in Chapter II using these effects.

1. ADDITIONAL RECREATION OPPORTUNITIES

See Recreation section, above for impacts of this criterion.

2. UNIQUE SETTING OF HOGBACK BASIN

The effects of each alternative are perceived differently by the backcountry nordic skier and the alpine skier. The effects are displayed separately in this section.

ALTERNATIVE 1 - (NO ACTION), AND ALTERNATIVE 2 - (NO CHANGE)

Effects to the Backcountry Nordic Skier:

Any improvement of the present White Pass Permit Area would have a minor impact to the unique setting of the Hogback Basin and Ridge. Some increase in ski activity within the permit area, combined with the increasing popularity of backcountry nordic skiing, will gradually increase the human presence in this semi-primitive setting. The unique quality of getting away from other people and skiing untracked snow will be reduced gradually over time. The sights and sounds of others will reduce the qualities of independence, tranquility and closeness to nature, and the self-reliant type of experience. This situation is likely inevitable whether the present area is expanded or not.

Effects to the Alpine Skier:

These alternatives would have little change or impact on the Alpine Skier.

ALTERNATIVE 3 - ADD CHAIR LIFT #7

Effects to the Backcountry Nordic Skier:

Impacts would be similar to Alternatives 1 and 2, except there would be more human encounters in the vicinity of the unloading point of the lift. The top tower could also be seen from a small portion of the lower Hogback Basin.

Effects to the Alpine Skier:

This alternative would have little or no effect on the unique setting as far as the alpine skier is concerned.

ALTERNATIVE 4 - ADD CHAIR LIFT #5 AND A MID-MOUNTAIN WARMING HUT

Effects to the Backcountry Nordic Skier:

The lift would have a negative effect on the value of the setting. The lift and the skiing it would serve would reduce the Basin's semi-primitive area. Its visual presence from portions of the Basin would be offensive to those skiers who are seeking the easy access, semi-primitive experience of the area. Some human noises could be heard on Hogback Ridge from skiers leaving the top of Chair Lift 5. Skiers would be funnelled away from Hogback Ridge in order for them to get back on the same lift. Much of the Hogback Basin and Ridge would remain, for the most part, free of the mainstream impact of the ski lift, particularly compared to the alternatives which include Chair Lift 6.

The mid-mountain warming hut would not impact the present setting significantly due to its being on the edge of the present permit area. It would, more than likely, serve to gather the backcountry skiers at the end of the day, in a more unique setting, as compared to the day lodge at the base of the mountain.

Effects to the Alpine Skier:

The lift-served telemark and alpine skier would benefit by this alternative. The glades in the eastern portion of Hogback Basin would be accessible and the chair lift would allow them to make repeated runs in the area. They would enjoy a more isolated alpine setting than in the present permit area, as well as being able to enjoy the spectacular views and better snow conditions. Access to high-elevation skiing is quite unique for beginner/intermediate skiers in the State of Washington.

The mid-mountain warming hut would offer a more quaint setting away from the lift lines and vehicle traffic, thus adding to the more primitive setting.

ALTERNATIVE 5 - ADD CHAIR LIFTS #5 AND #6 AND A MID-MOUNTAIN WARMING HUT

Effects to the Backcountry Nordic Skier:

This alternative would seriously impact the unique setting for the backcountry nordic skiers. The present character of the unmodified landscape and semi-primitive setting would be lost for these people. The presence of lift towers, especially of Chair Lift 6, and the increase in numbers of people, would drastically change the character of both the Basin and the Ridge.

The backcountry skiers would be displaced and need to find a replacement setting. They would have to ski somewhere other than White Pass, use areas without the same unique characteristics, or invest in considerably more effort to reach other areas with similar qualities.

Effects to the Alpine Skier:

The groomed slope telemarkers and the alpine skiers would have full access of the Hogback Basin. These skiers would be able to enjoy a less crowded area with improved snow conditions and magnificent, panoramic scenery.

ALTERNATIVE 6 - ADD CHAIR LIFTS #5 AND #7 AND A MID-MOUNTAIN WARMING HUT

Effects to the Backcountry Nordic Skier:

This alternative would have similar effects to Alternative 4.

Effects to the Alpine Skier:

In addition to the effects of Alternative 4, the alpine skier would be able to ski nearly the full vertical potential of the area--from the top of Chair Lift 5 to the bottom of Chair Lift 7. This added vertical potential and the expanded terrain would make the area more attractive to the vacation skier.

ALTERNATIVE 7 - ADD CHAIR LIFTS #5, #6 AND #7, AND A MID-MOUNTAIN WARMING HUT

Effects to the Backcountry Nordic Skier:

This alternative would have the greatest negative effect on the unique setting from the backcountry skiers' standpoint., This would be due to construction of Chair Lift 6 in the heart of Hogback Basin and due to the increased use caused by the full development. The unique values of isolation and semi-primitive character would be lost for this user. The backcountry skiers would be displaced, as with Alternative 5.

Effects to the Alpine Skier:

The positive effects of Alternatives 5 and 6 would be realized with this alternative. The entire Hogback Basin would be accessed for the alpine skiers, as well as the additional terrain served by Chair Lift 7.

3. PHYSICAL AND BIOLOGICAL EFFECTS

See Physical and Biological section above.

4. WILDERNESS IMPACTS

See Wilderness section above.

5. DISPLACEMENT OF THE BACKCOUNTRY SKIER

Backcountry nordic skiers do not use defined areas. they tend to spread out and utilize areas that suit their techniques. Though there is considerable overlap, telemark skiers look for steeper headwalls while day tourers generally stay on more gentle slopes.

In addition to Hogback Basin backcountry skiers use Miriam Basin, Shoe Lake Basin, and the Hell Lake Flat to the east of the existing area. They also utilize the areas north of Highway 12. [See Figure IV-11.]

Use of these areas by backcountry skiers is summarized in Table IV-3. The alternatives that include adding Chair Lifts 5 and/or 6 would reduce the area available specifically for these skiers. They could still use the lift-served areas but the setting would not be the same. They would not be able to experience the isolation, tranquility, and semi-primitive setting they currently enjoy there. Table IV-4 summarizes the effect on backcountry acreage in the proposed expansion area.

It is recognized that the Hogback Basin situation is unique (see Comparison Criterion #2). Mitigation to retain portions of the Basin as ungroomed and available to nordic skiers in case of expansion would reduce their displacement to a certain degree, but the effect cannot be fully mitigated. There are, however, additional nordic skiing opportunities outside the study area (Figure IV-3).

TABLE IV-3, ACRES USED BY BACKCOUNTRY SKIERS

		Backcountry Acres Used By:	
Area	Total	Telemarker	Day Tourer
Hogback Basin (& Ridge)	660*	400	660
Miriam Basin	300	300	—
Shoe Lake Basin	200	200	—
Hell Lake Flat	300	—	300
North of U.S. 12	1,000	100	1,000
TOTALS (Rounded)	2,460 (2,500)	1,000 (1,000)	1,960 (2,000)

*Net Useable Acres

TABLE IV-4, BACKCOUNTRY SKIING ACRES DISPLACED FROM HOGBACK BASIN

By Alternatives 4 and 6 (by Chair Lift 5)

300 Acres Ungroomed	- 360	- 100	- 360
NET REMAINING	2,140	900	1,640

By Alternatives 5 and 7 (by Chair Lifts 5 and 6)

235 Acres Ungroomed	- 425	- 265	- 425
NET REMAINING	2,075	735	1,575

ALTERNATIVE COMPARISON

The Comparison Criteria can be graphically summarized as follows (referenced as Tables IV-5 through IV-9 and also in Chapter II, Tables II-15→II-19).

COMPARISON CRITERIA

Comparison Criteria were developed to evaluate the effects of each alternative on the major issues concerns and opportunities identified during the scoping process. The environmental consequences are presented in Chapter IV. The following tables summarize the effects of the alternatives using these Comparison Criteria.

1. ADDITIONAL RECREATION OPPORTUNITIES - TABLE IV-5

	ALTERNATIVES						
Winter Recreation	1	2	3	4	5	6	7
Alpine Skier (Comfortable Capacities)							
Beginner	750	750	775	1105	1365	1155	1395
Intermediate	1125	1125	1333	1462	1755	1655	1980
Advanced	625	625	992	683	780	1040	1125
TOTAL	2500	2500	3100	3250	3900	3850	4500
Nordic Skier (Acres Available)							
Groomed trails (km.)	15	20	20	25	25	20	25
Non-groomed trails (mi.)	25	25	25	25	25	25	25
Backcountry-extended tourer	[Use is primarily outside study area]						
Backcountry-Telemark (acres)	1000	1000	1000	900	735	900	735
Backcountry- day tourer (acres)	2000	2000	2000	1640	1575	1640	1575
Lift-served Telemark	[Included with Alpine Skiers]						

	ALTERNATIVES		
Summer Recreation	8	9	10
Chair lift operating?	Yes	No	Yes
Interpretive/naturalist program?	Yes	Yes	Yes
Trail system in Hogback Basin?	No	No	Yes
Wilderness objectives emphasized?	Yes	Yes	Yes

2. UNIQUE SETTING OF HOGBACK BASIN - TABLE IV-6

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available For:							
Nordic skiers	660	660	660	300	235	300	235
Alpine skiers	0	0	0	360	425	360	425

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Backcountry Nordic Skier:							
Isolation	Retained			Difficult to Achieve			
Independence and self-reliance	No Restrictions on Individual Choices						
Closeness to nature	Retained			Still Possible			
Tranquility	Retained			More Distractions/Encounters			
Semi-primitive setting	Retained			Changed to Roaded-Natural			
Scenic Quality	Retained						
Access	Retained			Too Easy			

	ALTERNATIVES						
	1	2	3	4	5	6	7
Values to Alpine Skier							
High elevation	Not Available			Available			
Snow conditions	Restricted to Existing Conditions			Upper Elevation Conditions Avail.			
Access to scenic views	Good Views Accessible			Even Better Views Accessible			
Variable terrain (B=begin; I=intermed; A=advanced)	Good Mix Avail.		Increased Terrain Made available for: A	B/I	B/I	B/I/A	B/I/A
Uncrowded conditions	Crowding Increases		Uncrowded Conditions Retained				

3. PHYSICAL AND BIOLOGICAL EFFECTS - TABLE IV-7

	ALTERNATIVES						
	1	2	3	4	5	6	7
Soil Displacement (tons/year)	226.5	226.5	236.2	256.5	275.3	266.2	285.0
Delivered Sediment (tons/year)	11.3	11.3	11.6	12.8	13.8	13.3	14.3
Mass Movement	No areas with Mass Movement Potential will be impacted						
Water Quality	Slight increases possible in sediment as rated above. No other effects on water quality anticipated with planned mitigation.						
Wildlife Habitat	No adverse effect on wildlife habitat.						
Vegetative Clearing							
Heavy Timber	315	323	375	325	325	385	385
Open Stands	0	0	0	75	140	75	140
Visual Quality Areas (acres) Impacted with Retention, VQO and Low VAC. (The most sensitive areas)	315	323	375	325	325	385	385

4.WILDERNESS IMPACTS - TABLE IV-8

Alternative	Social/Physical Impacts	Users Solitude	Impacts to Views
1& 8(S)	Use increases at rate comp-arable to other areas	No change from present	No significant increase
2	Winter increases at rate greater than rec. trends. Could contribute summer uses.	Small change in opportunities for solitude, winter & summer	No change in view
3	Comparable to Alt. 2.	Comparable to Alt. 2.	No impact to Wilderness view.
4	Increases in winter ski touring. Summer increases same as Alt.2	Opportunities decreased by adjacent facilities.	Some adjacent views altered.
5	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
6	Slight decrease in impacts from Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
7	Same as Alt. 4.	Same as Alt. 4.	Same as Alt. 4.
9(S)	Reduction in summer encounters.	Reduction in summer encounters.	N/A
10(S)	Opportunity to reduce or increase depending on planning.	Opportunities to increase or decrease depending on planning.	N/A

5. DISPLACEMENT OF BACKCOUNTRY SKIERS - TABLE IV-19

	ALTERNATIVES						
	1	2	3	4	5	6	7
Acres Available							
in Hogback Basin	660	660	660	300	235	300	235
in Study Area	2500	2500	2500	2140	2075	2140	2075

(Additional backcountry nordic skiing opportunities exist outside the study area, however the White Pass situation is considered unique—see Comparison Criterion #2. See also Figure IV-11.)

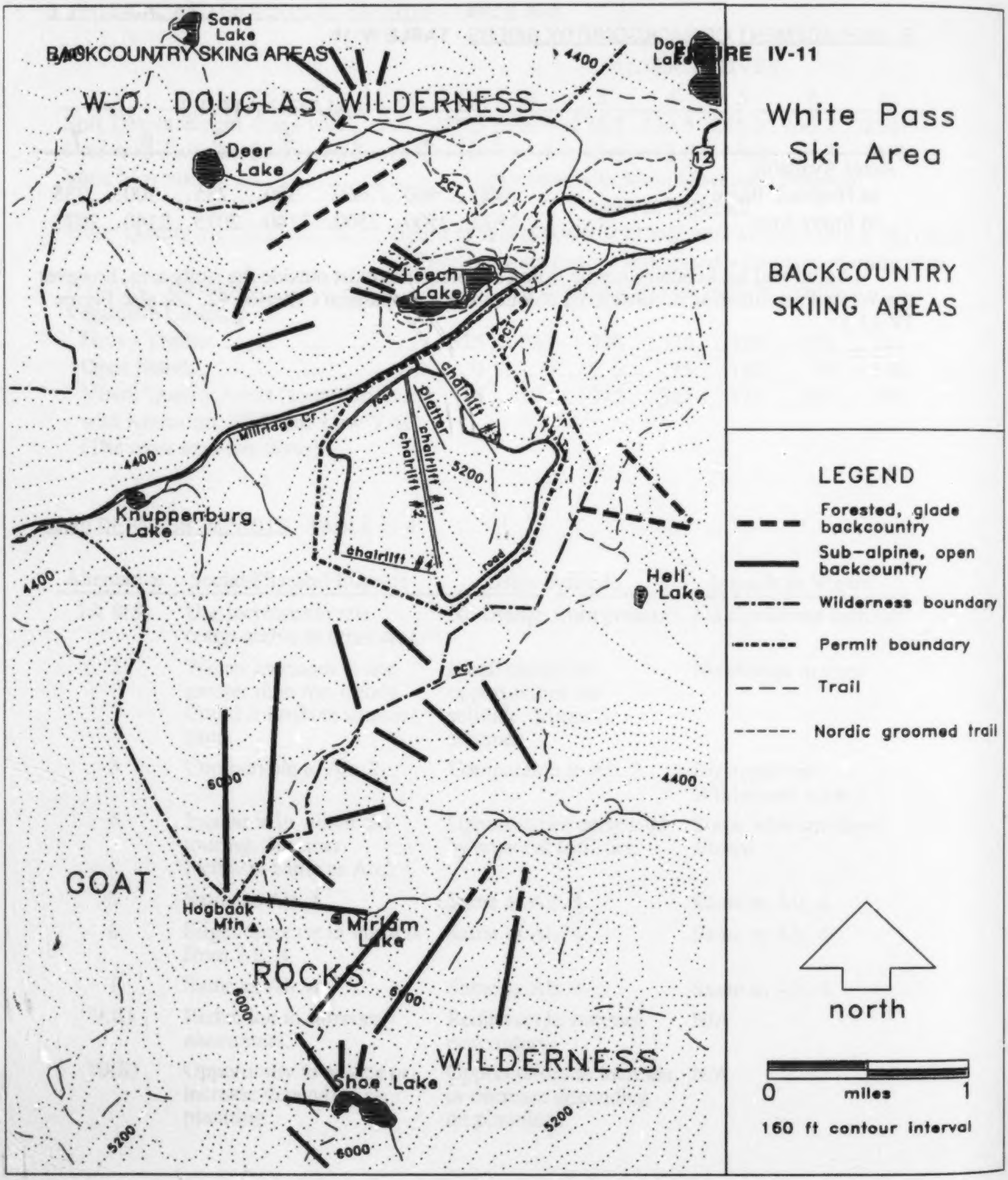


FIGURE IV-11

White Pass Ski Area

BACKCOUNTRY SKIING AREAS

Sand Lake
BACKCOUNTRY SKING AREAS
Dog Lake
4400
W.O. DOUGLAS WILDERNESS
Deer Lake
12
PCT
Leech Lake
PCT
chairlift #3
platter
chairlift #1
chairlift #2
Millridge Cr.
road
5200
4400
Knuppenburg Lake
chairlift #4
road
Hell Lake
4400
PCT
6000
4400
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
LEGEND
Forested, glade backcountry
Sub-alpine, open backcountry
Wilderness boundary
Permit boundary
Trail
Nordic groomed trail
north
0
miles
1
160 ft contour interval

CUMULATIVE IMPACTS

CEQ regulations (40 CFR 1508.7) require that cumulative impacts be considered in analysis of the alternatives. Cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions."

Cumulative effects are an aggregate of many direct and indirect effects and include actions which have occurred or can reasonably be expected to occur both within the ski area and outside the study area. Other recreational development, timber sales and retail and commercial development in nearby communities are examples of other actions, coupled with White Pass development, that result in cumulative impacts to the Forest's resources. The impacts identified in this section assume implementation of Alternative 7, full development.

Additional hours of congestion on Highway 12 would be expected. This would lead to increased emissions but these would not be at significant levels and would be dispersed as previously noted. There would be a slight increase in smoke emissions from construction slash disposal and from additional residences—but again not at a significant level.

About 315 acres of forest cover have been cleared for the existing development. An additional 70 acres of mature forest would be cleared with this proposal, as well as some clearing and impact on 140 acres of subalpine areas. The cumulative impacts are localized. Some change in vegetative composition is expected as described in the Vegetation section on plant communities.

Cumulative soil impacts are localized and consist of erosion and sedimentation resulting from road, lift and building construction and slope clearing. These impacts began with the existing ski area and would be increased about 25% with full development. They would not be noticeable in either the Cowlitz or Tieton River systems.

Cumulative effects on wildlife and water quality would be localized and minimal. Some additional disruption of foraging patterns of big game may occur, but this is not limiting for the populations involved. Also slope clearing and added edge effect would increase some useful habitat. With the planned mitigation and the reconstruction of the condominium sewage system, water quality would not be adversely affected.

The natural-appearing landscape would be further disturbed by increased evidence of human activity. The existing development heavily impacts the visual quality of the immediate area of White Pass. Clearing and structures here have already modified the landscape. Clearing for Chair Lift 7 and its construction would impact an additional 60 acres and impose additional contrast and lines on the landscape. The visual quality in the upper areas (Hogback Basin) would be retained from most viewpoints.

The alpine skiing experience at White Pass would be improved with the increase in the amount and variety of skiing terrain. This would make the White Pass operation more competitive for vacation skiers. Increased tourism is expected in the general area. Year-round trade would help make these tourist businesses more viable. More tourist and service businesses would be attracted to the area—especially in the Packwood and Rimrock/Trout Lodge areas. The demand for homes would increase and land values would rise. However, the land base is not constrained so a range of land values would remain.

Increased traffic on Highway 12 would exceed design capacities. Currently, peak flows are during the summer, and they already exceed design capacity. With development, winter peaks would also occur. No construction is anticipated but mitigation is planned to reduce congestion and accidents at the ski area. This is primarily a recreation highway and congestion during peak periods is acceptable according to the WDOT.

SUMMARY OF ADVERSE EFFECTS WHICH CANNOT BE AVOIDED

The implementation of any of the alternatives results in some adverse impact to both the physical and biological environments and to the human environment. Most of these can be mitigated to acceptable levels using measures previously specified. The unavoidable adverse impacts summarized below are those that are expected to occur after application of these mitigating measures, or which cannot be mitigated to a level approaching existing conditions.

Most impacts to the physical and biological environments can be acceptably mitigated. There would be increased soil disturbance; however, no mass movement or degradation of water quality is projected. There would be little direct effect on wildlife habitat. The direct effect of increased development within elk winter range cannot be fully mitigated, but this situation is not considered critical. Vegetative effects would be primarily changes in plant community composition and are not considered significant.

The visual character of the highway corridor would be impacted more than at present. Clearing for the lift line, ski runs and access road for Chair Lift 7 would add lines and alter colors in the characteristic landscape of uniform, dense, mature timber. These changes cannot be fully mitigated. To the extent possible, however, impacts would be reduced by feathering the edges of the clearings and by painting structures and hardware colors that blend with the landscape. Landscape architect's skills would be utilized when designing clearings.

The change in the mix of skiers using Hogback Basin cannot be fully mitigated. With full development the Basin becomes available for alpine skiing and summer trail hiking. The unique setting for the backcountry nordic skier would be altered. The isolation, tranquility and semi-primitive setting would not be available and there would be some displacement of this use. As a mitigation measure at least 235 acres of the Basin would remain ungroomed and available for nordic skiing and these are some of the most popular acres in the area for it.

Mitigation measures have been identified to minimize adverse effects on the Wilderness—especially Miriam and Shoe Lake basins. These measures should allow use to remain at or below existing levels. If the mitigation measures are not successful, with increased summer use in Hogback Basin adverse Wilderness impacts could occur in the Goat Rocks Wilderness. Monitoring of impacts is provided for and there are provisions for bringing them back to acceptable levels if necessary.

Some of the social and economic changes in local communities would not be mitigated. As development occurs and more skiers use the area, tourist and service business in the Packwood and Rimrock/Trout Lodge areas would increase. Some people would consider this a positive effect. Its side effects, increased land values and, possibly, increased taxes, would be an adverse effect to others. This effect could not be fully mitigated but the land base is large enough so the adverse effects would not become critical.

RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

Short-term effects of the alternatives, both beneficial and adverse, have been identified in previous sections. In this section, they are discussed in terms of their implications for the long-term stability and productivity of the environment.

White Pass Company has been committed to long-term management of the White Pass Ski Area since its opening in 1953. This use accommodates a high level of recreation visits on a relatively small portion of the National Forests. Each of the alternatives continues this long-term commitment of the local environment to relatively high-density recreational use. Continued development would create an opportunity for considerably greater number of people to use the area.

Long-term effects on the productivity of the physical and biological resources would be minimal. About 70 acres of old-growth timber would be removed and these areas revegetated with natural grass/shrub species replacing the trees. Minor changes in vegetational composition in Hogback Basin are anticipated but they would be shifts in successional patterns not a loss of productivity. There will be little long-term effect on wildlife habitat. Chair Lift 7 would change the visual character of the highway corridor and this would be considered a long-term change in the visual objectives for the viewed area.

Removal of vegetation for road, facility and lift construction would result in a short-term loss of protective cover and increased soil erosion. The short-term erosion and soil productivity loss from soil disturbance would be mitigated by prompt revegetation. In the long-term, soil productivity would be lost at facility development sites and within road prisms. This would be due to soil compaction in these areas and the long-term commitment to use. The effects of soil displacement are displayed in preceding sections.

More visitors to White Pass would create a demand for increased commercial and retail development. Some changes in the character of local communities would occur, as well as some increase in population, both permanent and seasonal. The broader tax base resulting both directly and indirectly from this development would be offset by increased demand for services.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible commitment of resources refers to non-renewable resources, such as cultural resources, or to those which are renewable only after long time spans, such as soil productivity. Irretrievable commitment applies to losses of production, harvest or use of renewable natural resources. For example, the timber production capability of an area is irretrievably lost while the area is used as a winter recreation site. The production lost is irretrievable, but the action is not irreversible.

Ski area development represents an essentially permanent commitment of the area to relatively high-density recreational use, and, though additional development at White Pass would not be a completely irreversible or irretrievable commitment of resources, from a practical standpoint it can be considered as such. Should the time come that development in the permit area is no longer desired and is amortized, the various facilities can be dismantled and removed and the area revegetated or allowed to return to a natural state.

Because of the earthwork required and the loss of soil productivity, irreversible commitments include construction of new access roads and parking areas. Other aspects of the development, including lifts, utilities and buildings can be reversed and natural resources restored over time.

Loss of soil productivity is irreversible at the sites of development. Compaction along roads, trails and other places frequented by people could cause irretrievable impacts to the ability of these areas to support vegetation. Vegetation removed for these developments is an irretrievable impact for at least the life of the project.

The visual resource is irretrievably altered by the Chair Lift 7 clearings. These will remain long after the life of the facility.

The use of rock to gravel the roads and parking areas is an irretrievable commitment of these limited resources.

SPECIFICALLY REQUIRED DISCLOSURES

1. Effects of Alternatives on Threatened and Endangered Species and Critical Habitats.

   There would be no adverse impacts to any Federally-listed threatened and/or endangered species or any critical habitat as a result of this project.

2. Effects on Floodplains and Wetlands.

   There would be no adverse impacts on any floodplains or wetlands.

3. Effects of Alternatives on Prime Farm Land, Rangeland, and Forest Land.

   All alternatives are in keeping with the intent of Secretary of Agriculture Memorandum 1827 for prime land. The project area does not contain any prime farm lands or rangelands. "Prime Forest Land" does not apply to lands within the national Forest system. In all alternatives, National Forest lands would be managed with a sensitivity to the effects on adjacent lands.

4. Energy Requirements of Alternatives.

   There are no unusual requirements for implementing any of the alternatives; energy use is proportional to the amount of use of the area.

5. Effects of Alternatives on Minorities and Women.

   There would be no differences between alternatives in their effect on American Indians, other minorities, women, or the Civil Rights of any American citizen. Alternatives that increased job opportunities, would increase them for all minorities.

5. GLOSSARY

Airshed
A geographical area that, because of topography, meteorology, and climate, shares the same air.

Alpine
Related to high-elevation slopes above timberline.

Alpine Skiing
Skiing where boot heel is secured tightly to the skies, on developed slopes using chairlifts. Same as downhill skiing.

Alternative
One of several policies, plans, or projects proposed for decision making.

Aquatic Ecosystems
The stream channel, lake or estuary bed, water, biotic communities and the habitat features that occur therein.

Background
The visible terrain beyond the foreground and middleground where individual trees are not visible but blended into the total fabric of the forest stand.

Base Area
Related to the defined geographic area of a developed ski area where parking, lodge facilities, skier services, and/or retail and commercial services are provided.

Big Game
Those species of large mammals normally managed for sport hunting.

Catchline (relative to this EIS)
Road at lower end of the upper basins to "catch" skiers and prevent them from dropping into the steep Knuppenburg Lake slopes.

CEQ (Council on Environmental Quality)
An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Commercial Forest Land
Forest land that is capable of producing crops of industrial wood and is not withdrawn from timber use by statute or administrative regulation.

Compaction
To unite firmly; the act or process of becoming compact, usually applied in geology to the changing of loose sediments into hard, firm rock.

Composting Toilet
Vault toilet where additives and air are circulated to increase the natural breakdown of waste material.

Cross-Country Skiing
See Nordic Skiing.

Cultural Resources
Any site, structure, or object, or group of sites, structures, or objects that have been made, modified, or used by man in the past. Usually considered to include architectural, archaeological and historical resources.

Cumulative Effect
The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

DEIS
Draft Environmental Impact Statement.

Delivered Sediment
The amount of eroded soil material that enters a live stream or lake.

Developed Recreation Site
Distinctly designated area where facilities are provided for concentrated public use; e.g. campgrounds, picnic areas, boating sites, and ski areas.

Dispersed Recreation
Outdoor recreation that takes place outside developed recreation sites or the Wilderness.

DOE (WDOE)
Washington Department of Ecology.

DOT (WDOT)
Washington Department of Transportation.

DOW (WDOW)
Washington Department of Wildlife.

Downhill Skiing
See Alpine Skiing.

EA (Environmental Assessment)
A concise public document required by the regulations implementing the National Environmental Policy Act; one step below an EIS; can be used to decide if an EIS is needed.

Effects
Environmental consequences as a result of a proposed action. Included are indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include population growth-inducing changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

EIS
Environmental Impact Statement.

Emissions
Substances discharged into the air.

Endangered Species
Any species of animal or plant which is in danger of extinction throughout all or a significant portion of its range. An endangered species must be designated in the Federal Register by the appropriate Federal Agency Secretary.

Environmental Analysis
An investigation and analysis of alternative actions and their predictable short and long term environmental effects, incorporating the physical, biological, economic, social, and cumulative effects.

EPA
Environmental Protection Agency.

Erosion
The wearing away or detachment of the land surface by running water, wind, ice, or other geolocial agents.

Eutrophication
Natural process in shallow lakes where plant growth in the lake increases and the ability to decompose the material decreases. Leads to filling up the lake.

EVC
Existing Visual Condition.
The current condition of the landscape from the visual management standpoint; description of the degree of visual alteration that has occurred.

FEIS
Final Environmental Impact Statement.

Fishery
Lake or stream that contains fish. May naturally reproduce fish or be artifically stocked.

Forbs
Low-growing, non-grass plants, sometimes called weeds. Includes flowering plants.

Foreground
A term used in visual (scenery) management to describe what is immediately adjacent to a high-value scenic area, recreation facility, or forest highway.

FSM
Forest Service Manual.
Set of policy and management guidelines from which the Forest Service manages the National Forests.

Habitat
The place where a plant or animal naturally or normally lives and grows.

Headwall
Steep, upper portion of a high elevation basin, often with cliffs or talus slopes.

Hydrologic
Relating to the properties, distribution, and circulation of water.

ID Team
Interdiscliplanary Team.
A team of people that collectively represent several disciplines and whose duty it is to coordinate and integrate the analysis process and preparation of the EIS.

Impacts
Any change in social, economic, physical or biological factors which result from direct or indirect effects on an action. They may be adverse or beneficial depending on the direction of change.

Intermittent Stream
A stream that flows above ground at intervals or only flows periodically during the year.

Irretrievable
Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible
Applies primarily to the use of nonrenewable resources, such as mineral or cultural resources, or to factors, such as soil productivity, that are renewable only over long time periods. Irreversible also includes loss of future options.

Issue
A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

Krumholz
Trees at the upper edge of timberline where environmental conditions are so severe that trees are not upright, but rather grow as distorted shrubs or mats.

Limiting Factor
Physical or biological condition that constrains the population numbers of a species, e.g. winter range for elk.

Master Plan
A concept and/or program for long-term development of a defined geographic area.

Middleground
The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the stand.

Mitigation
Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice.

NEPA
The National Environmental Policy Act of 1969. This law requires the prepartion of environmental impact statements for every major Federal action which causes a significant effect on the quality of the human environment.

Nordic Skiing
Skiing where the boot heel is not affixed to the skies, generally in undeveloped areas. Same as cross-country skiing.

Old Growth
Very old trees, usually well past physiological maturity. Definitions vary, but generally, it includes trees over 200 years old.

PAOT
Persons at one time, a capacity measurement indicating the number of people that can use an area at one time. Includes skiers and non-skiers.

Plant Communities
A vegetation complex unique in its combination of plants which occur in particular locations under particular influences. A plant community is a reflection of integrated environmental influences on the site; i.e., soils, temperature, elevation, solar radiation, slope, aspect, and rainfall.

Platter Lift
A conveyence that takes alpine skiers uphill while they remain on their skies and on the slope, e.g., T-Bar, J-Bar or Poma Lift.

Point and Nonpoint Pollution
Pollution which originates at a single identifiable source, such as a sewage treatment plant, is known as "point". Erosion and sedimentation are examples of nonpoint pollution.

Potable
Suitable for drinking.

Ranger District
An administrative subdivision of a National Forest, supervised by a District Ranger, who reports to a Forest Supervisor.

Recreation Opportunity
An opportunity for a user to participate in a preferred activity within a preferred setting, in order to realize those experiences which are desired.

Recreation Visitor Day (RVD)
A unit for measuring recreation use, with 12 visitor hours in a visitor day. This may consist of one person for 12 hours, 12 persons for one hour, or any equivalent combination of use by individuals or groups.

Retention
A visual quality objective where human activities are not evident to the casual forest visitor.

Riparian Areas
There include all bodies of water and adjacent land areas which are influenced by the presence of the water. Wetlands, seeps and springs are also included as riparian areas.

RVD
See Recreation Visitor Day.

SAOT
Skiers at one time.
A capacity measurement indicating the number of skiers that can use an area at one time.

Scoping Process
A process in conjunction with environmental analysis which identifies issues and concerns within the authority of the Forest Service to be analyzed.

Sediment
Solid material, both mineral and organic, that is in suspension, and is being transported from its site of origin by air, water, gravity, or ice, or has come to rest on the earth's surface either above or below water level.

Sensitive Species
Those species of plants or animals that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on Federal or State lists.

Skier Visit
One person visiting a ski area for all or any part of a day or night for the purpose of skiing.

Sheet Erosion
The removal of a fairly uniform layer of soil from the land surface by runoff water.

Slash
The wood residue left on the ground after timber cutting and/or accumulating there as a result of storm, fire, or other damage. It includes unused logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

Snag
Any standing dead tree or portion of the stem of a standing dead tree having a minimum diameter at breast height of ten inches and a minimum height of ten feet.

Snotel Guage
Recording weather instruments used by the Soil Conservation Service to mesure precipitation and snow fall.

Soil Displacement
The movement of soil from one place to another by some management activity related practice. An example of soil displacement would be road construction, moving soil and exposing it to the elements. Soil displacement usually removes the protective surface material (grasses, forbs, duff, etc.,), thereby exposing the mineral soil to the erosional forces of water and wind.

Soil Disturbance
The mixing of duff material or other woody material into the surface horizons without significant movement of the soil from one place to another. There is little if any bare soil created by this activity; therefore, soil erosion is seldom a problem as a result of soil disturbance.

Study Area
Geographic area analyzed in the EIS. Here, an area roughly bounded by Shoe Lake Basin to the south, Sand Lake to the north, Dog Lake to the east and Knuppenburg Lake to the west. Indirect effects are included for the U.S. Highway 12 corridor.

Subalpine
Related to high-elevation slopes at and somewhat below timberline.

Succession
The process of plant community development that involves changes in species, structure and community processes with time; that is, one plant community changes into another.

Talus
Sloping pile of rock fragments at the foot of a cliff.

T, E & S Species
Plant or animal species listed as Endangered or Threatened by the Secretary of Interior, or listed by the Regional Forester as Sensitive.

Thermal Cover
A habitat type for large herbivores that provides temperature protection. This usually is provided by stands of trees.

Threatened Species
Any species of animal or plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which has been designated in the Federal Register by the Secretary of Interior as a threatened species.

Timberline
Tree line; the upper elevational limits of tree growth. In the Pacific Northwest, this is usually a broad, extended forest/ meadow mosaic rather than a narrow, well defined transition.

VAC
Visual Absorption Capability.
The relative degree that a landscape can accomodate change or alteration without adverse effects.

Viewshed
The total landscape seen or potentially seen from all or a logical part of a travel route, use area, or water body.

Visual Management System
The management system used to protect and enhance the visual resource.

VQO
Visual (Scenic) Quality Objective.
Goals for management of the visual resource which describe various degrees of natural landscape character alteration.

Water Quality
The biological, physical, and chemical properties of water that make it suitable for given specified uses.

Wetlands
Areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction (Executive order 11990). Under normal circumstances, the area does, or would support a prevalence of vegetative or aquatic life.

Washington State Wilderness Act
(Wilderness Act of 1984, PL88-577).
Comprehensive legislation to establish National Forest Wilderness areas within the State of Washington.

Wilderness
The Wilderness Act of 1964 defines Wilderness as follows:
"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act, an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive experience."

6 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF STATEMENT ARE SENT

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Agriculture, U.S. Dept. of,
  Animal & Plant Health Insp. Service
Agriculture, U.S. Dept. of,
  Office of Equal Opportunity
Agriculture, U.S. Dept. of,
  Rural Electrification Admin.
  Environmental Policy Office
Agriculture, U.S. Dept. of,
  Rural Electrification Admin.
  Asst. Admin. for Management
Agriculture, U.S. Dept. of,
  Soil Conservation Service
Commerce, U.S. Dept. of,
  National Marine Fisheries Serv.
Commerce, U.S. Dept. of,
  NOAA Ecology & Conservation Div.
Cowlitz Tribe
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  Off. of Pipeline & Prod. Reg.
Fed. Energy Regulatory Comm.,
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  Northwest Region
Federal Highway Administration,
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Housing & Urban Dev., U.S. Dept.,
  Regional Administrator II
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  Regional Administrator V
Housing & Urban Dev., U.S. Dept.,
  Regional Administrator VI
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Labor, U.S. Department of,
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Okanogan National Forest
Packwood Ranger District
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Chamber of Commerce, City of Yakima
Chamber of Commerce, City of Packwood
Chamber of Commerce, City of Randle
Greater Yakima Cham. of Commerce
Lewis County Commissioners
Lewis County Planner
Lewis County Public Works
Lewis County Sheriff
Naches, Mayor of
Olympia Timberland Library
Packwood City Library
Packwood, Mayor of
Randle, Mayor of
Seattle City Library
Southeast Yakima Community Center
Yakima County Commissioners
Yakima County Planner
Yakima County Public Works Dept.
Yakima County Sheriff
Yakima Regional Library
Yakima, City of

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Crystal Mtn.
Daily Chronicle, Spokane
Ellensburg Cross-Country Ski Club
Forty-nine Degrees North
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  David Hagen, President
Cascadians,
  Stan Isley
Pacific Crest Trails Assoc.
  Washington Trails Assoc.,
  Louis Marshall
Mountaineer, The - Headquarters
Mountaineer, The - Tacoma Branch
Mountaineer, The - Olympia Branch
Mountaineer, The - Everett Branch
Mountaineer, The - Attn: Bev Dahlin
Mountaineer, The - Bellingham Branch
Mountaineer, The - Carsten Lien, Pres.
Mt. Spokane Ski Cap
Pacific Crest Trail Association
Pacific West Hyak
PNW Ski Areas Assn.
PNW Ski Association
American Ski Federation
Gifford Pinchot Task Force
Sierra Club - Charlie Raines
Sierra Club, Cascade Chapter
Signpost For Northwest Trails
Ski Blue Wood
Stevens Pass
USSA/PNSA - Charlie Arvidson
Village Inn, The
Washington Trails Assn.
Washington Wilderness Coalition
Wenatchee Mountain Inc.
Wenatchee World
White Pass Co., Inc.
White Pass Expansion Project
Wilderness Society, The
Yakima Herald-Republic

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Abbenhaus, Nancy S.
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Anderson, Graham
Anderson, Lilly Lee
Anderson, Mr. & Mrs. Robert
Arbuckle, Audrey
Arneson, Arnie
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Bennison, Pete
Benson, David A.
Benson, Norma
Bjornstad, Bruce
Boone, Stephen K.
Bopha, Ben
Boyd, Dave
Boyd, Frank E.
Brassington, Andy
Brazil, Jim
Brosio, James A.
Brown, Rodney L., Jr.
Bruce, Robert
Bruhn, George & Lois
Buckmiller, Ron
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Burgess, Rohn
Burke, James E.
Burns, Ed and Wendy
Burr, Eric
Busby, Scott
Bushnaq, A.
Byars, Mr. and Mrs. John R.
Campbell, Doug
Carlson, Coralie K.
Carlson, Erik
Carrier, Rodney
Cassatt, Jeannie
Castle, Ted
Cecil, Jerry L.
Chilcote, W. J.
Chitwood, Ceonu
Chitwood, Ronald
Christman, Chris
Christman, Henry C.
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Clark, Christopher
Close, Mr. & Mrs. R.J.
Coffey, Kathy
Collins, Bob
Collins, Lyle
Cooper, Jody
Cooper, Terry
Cote, David K.
Courtney, Mel
Crowell, Mr. and Mrs. B.L.
Crumpton, Paula
Cupp, Eddie
Cushman, Leslie
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Daskal, Neal
Davis, D.R.
Davis, Jack
Davis, James E.
Davison, Beverly
Dawsey, Chuck
DeVal, Frank
DeWilde, Billie A.
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Eglin, John
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Hudgens, Paul
Hunsperger, Lee
Huntley, David
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Johnson, Phil
Johnson, Philip E.
Johnson, Rick
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Jones, Ross
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Jozefiak, Ted Elmer & Anita
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Kershaw, Robert
Kessey, Sallie and Daniel
Ketner, R.N.
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Langlow, Stanley C.
Lehman, Burton

Lenz, Karen and Larry
Lim, Dan
Lofgren, Tim
Logan, Donna
Lombard, Ben
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MacKintosh, R.G.
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Matson, Alan
Mattson, James M., Jr.
McCall, Bob and Paulene
McCarthy, Rose Anne
McCormick, Jim
McDonald, Bill
McDonald, Julie
McGoffin, Keith D.
McGree, Tim
McLeod, Marshall
McMahan, Glen
McMahan, William R.
McMullen, Belinda
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Murphy, Michael & Jackie
Murray
Nashem, Norman R., Jr.
Naughton, Susan
Nesset, John C.
Newkirk, Ken
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Nygard, Erik
Nygard, Rebecca
O'Brien, P.J. & Kim
O'Neill, Robert H.
Olson, Robert J.
Olson, Sylvia
Overton, David
Pannell, Susan
Paolella, Ray

Paolella, Ray
Parker, Jerry
Paulu, Tom
Pauly, Doug
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Pedone, Peter J., Sr.
Peters, Chuck & Cathey
Peters, Mr. and Mrs. Chuck
Peterson, Bill
Peterson, Donald C.
Peterson, Donna
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Picatti, Dick
Picatti, Donald S.
Piercy, Dale
Plesha, David I.
Porter, Fred E. and
Portteus, Steve
Powell, David W.
Prichard, James A.
Proud, Larry
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Putney, John
Quiring, Ellen
Racy, Scott
Rambo, Mr. and Mrs. Clark
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Rice, Glen K.
Rieper, Doug
Riggs, John & Kaye
Robertson, Scott
Robison, Kim
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Rossow, Randy
Rowan, Mike
Rowles, Roger
Rowles, Roger B.
Royal, Al
Rupe, John
Ryland, Anita
Sabin, Pete, C.L.U.
Sailors, Mike
Sample, Jeff
Sandstrom, Ken
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Schut, Donald K.
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Sharp, Randall R.
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Simon, Steve L.

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Splawn, Erik
Spoor, Regina
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Thomas, Kay and Sharon
Thomas, Susan
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7. LIST OF PREPARERS

Preparation of this document was accomplished by three groups. A Forest Service Interdiscliplinary Team managed the analysis process, developed the range of alternatives analyzed in the EIS, and provided the data analysis and review.

The second group are the resource specialists who provided data and information in their specialty fields. Some of these are Forest Service resource specialists. Others were consultants under contract to White Pass Company. Some are in the private sector.

The document was written and edited by Cascade Woodlands under contract by the Wenatchee National Forest.

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Education --- B.S. Forest Management
Experience -- 30 years with Forest Service, 9 years on Wenatchee N.F. Primary experience recreation management and administration.

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General Manager, White Pass Company
Experience -- 10 years ski area management at White Pass. Provided data and information on Company's proposal.

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C. - WRITER, EDITOR

The writing and editing of this document was done by Cascade Woodlands, Wenatchee, Washington, a private consulting firm, under contract with the Wenatchee National Forest (Solicitation No. R6-17-89-17). Carter Communications provided assistance in editing, formatting and preparation of camera-ready copy.

In accordance with CEQ Regulations (1506.5(c)), the consultant was selected solely by the Forest Service, the consultants executed a disclosure statement specifying that they have no financial or other interest in the outcome of the project, and the Forest Service provided guidance throughout the development of the EIS and has responsibility for its scope and content.

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8. APPENDIX

A. SCOPING NOTICE

B. SUMMARY - SCOPING ANALYSIS

C. PLANT LIST

D. RECREATION OPPORTUNITY SPECTRUM DESCRIPTION

E. PROPOSED FOREST PLAN - MANAGEMENT STANDARDS AND GUIDELINES

F. BOUNDARY MANAGEMENT GUIDELINES

United States
Department of
Agriculture

Forest
Service

Wenatchee
National
Forest

301 Yakima Street
P.O. Box 811
Wenatchee, WA 98801

Reply To: 2720/1950

Date: October 7, 1988

Forest Users and Coordinating Agencies

You have previously expressed interest in the White Pass Company proposal to expand the White Pass Ski Area. We are now in what is called the "Scoping Process" to identify issues, concerns, and alternatives to be considered in an Environmental Impact Statement (EIS) on this proposal. This letter is an invitation for you to help us determine the issues and alternatives to be considered.

The proposal is to expand the existing White Pass Ski Area by the construction of three chair lifts and a mid-mountain lodge, largely into lands withdrawn from the Goat Rocks Wilderness by the 1984 Washington State Wilderness Act. In a previous environmental analysis, we received nearly 200 letters from interested individuals and agencies in regards to the proposal. It is controversial in several respects. Based on the analysis and public comment, I have determined that an EIS is needed to review a wider range of alternatives in greater depth.

I have enclosed a copy of the notice filed in the Federal Register announcing this process. The notice provides you with a brief summary of the proposal. We are inviting your written comments and suggestions on the scope of the analysis to be covered in the EIS. A response form is enclosed. The deadline for comment on this initial stage of the process has been extended to November 21, 1988. You will have 90 full days to review the Draft Environmental Impact Statement when it is released next year.

Several alternatives were developed during the preparation of the Environmental Assessment (EA). Since that time, several additional alternatives have been developed in response to comments received on the EA and as a result of input from the Forest Service Interdisciplinary Team that has been formed to prepare the EIS.

TENTATIVE ALTERNATIVES - (Refer to Map)

1. NO ACTION: Management of existing facilities without expansion outside the existing permit area.

TENTATIVE ALTERNATIVES - (Refer to Map) cont'd.

2. BUILD CHAIR LIFT 7 and MID-MOUNTAIN LODGE: This would provide additional expert skiing terrain and mid-mountain lodge would serve both alpine and cross-country skiers. Most of Hogback Basin would be left undisturbed. The beginner and intermediate alpine skiing terrain would basically stay as it is.

3. BUILD CHAIR LIFT 5 and MID-MOUNTAIN LODGE: This would enable both alpine and cross-country skiers to access the higher elevation. Very little additional expert terrain would be developed, but some additional beginner and intermediate skiing terrain would be made available. Cross-country skiers would have to share more terrain in Hogback Basin with downhill skiers.

4. BUILD CHAIR LIFTS 5 and 6 and MID-MOUNTAIN LODGE: This alternative would provide the most alpine skiing in Hogback Basin, expanding the ski area's capacity of beginner, intermediate, and expert terrain. Less terrain would be available solely to cross-country skiing. Only short additional runs would be available in terrain for expert skiers.

5. BUILD CHAIR LIFTS 5 and 7 and MID-MOUNTAIN LODGE: This alternative would provide additional beginner, intermediate, and expert terrain, but leave more of the west side of Hogback Basin available to cross-country skiers.

6. BUILD CHAIR LIFTS 6 and 7 and MID-MOUNTAIN LODGE: This alternative would provide additional beginner, intermediate, and expert terrain, but would leave more of the east side of Hogback Basin available to cross-country skiers.

7. BUILD CHAIR LIFTS 5, 6, 7, and MID-MOUNTAIN LODGE: This alternative (the proposal) would provide the most alpine skiing, expanding the ski area's capacity of beginner, intermediate, and expert terrain. It would also require the most sharing of terrain by cross-country and downhill skiers.

8. CONSTRUCT MID-MOUNTAIN LODGE and CROSS-COUNTRY SKI TRAILS IN THE HOGBACK BASIN: This alternative would serve the cross-country skiers, but would not provide additional alpine skiing.

Several potential issues have also been identified. Your help is needed to determine which issues should be analyzed in depth. Feel free to suggest additional issues which should be addressed in the EIS.

POTENTIAL ISSUES TO BE ADDRESSED

1. UNIQUENESS OF AREA: Is this area unique from a cross-country skiing standpoint? Will the proposal degrade the opportunity to cross-country ski in the area? What is the appropriate use of mix of uses? If a mix is appropriate, where should each use take place? Can development occur in a manner which minimizes user conflicts?

POTENTIAL ISSUES TO BE ADDRESSED - cont'd.

2. EFFECTS UPON ADJACENT WILDERNESS VALUES: Will increased human activity associated with the proposal lead to increased use of adjacent Wilderness, winter and summer? Will the solitude of users and views seen from the Wilderness be degraded? Can this proposal be implemented in a manner which minimizes the effects on adjacent Wilderness values and reduces those effects to acceptable levels?

3. BENEFITS TO THE RECREATING PUBLIC: To what degree does the proposal improve the overall attractiveness of the ski area to the recreating public? Does the demand for additional recreational opportunity outweigh the costs of development in terms of environmental impacts and altered mix of uses?

4. HAZARDS TO DISPLACED CROSS-COUNTRY SKIERS: If development takes place, will displaced cross-country skiers be pushed into more hazardous terrain?

5. RESOURCE CAPABILITY: Can the watershed and soil be kept in a suitable condition if development occurs?

The information you provide will be considered in the preparation of the Draft EIS. A postage-paid response form has been included for your convenience. Feel free to send your personal letter if you prefer.

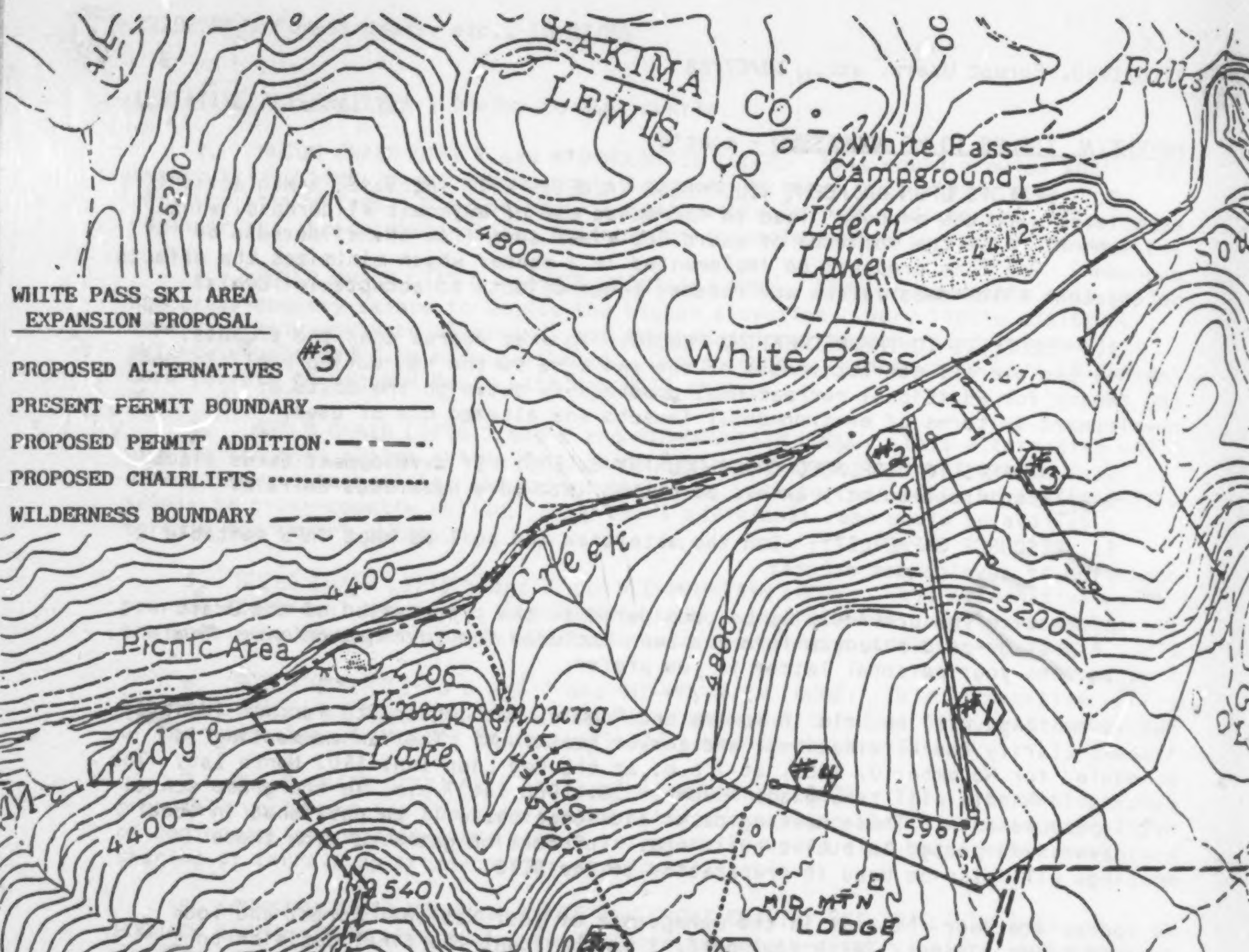
Public meetings will be held in Yakima and Randle, Washington, to further identify issues, clarify the alternatives, and answer questions. The Yakima meeting is scheduled for November 9, 1988, at 7 p.m. at the Red Lion Inn, 1507 North 1st. The meeting in Randle will take place November 10, 1988, at 7 p.m. in the grade school multi-purpose room. These meeting dates and locations will be published in local newspapers and posted in public buildings. Information gathered from these meetings will also be used in preparation of the DEIS.

We appreciate your interest in the management of your National Forest and look forward to your input. With your help, I am confident the final decision to determine how this area of land is to be managed will be well thought out and in the best public interest.

Sincerely,

for SONNY J. O'NEAL
Forest Supervisor

Enclosures


WHITE PASS SKI AREA
EXPANSION PROPOSAL
PROPOSED ALTERNATIVES #3
PRESENT PERMIT BOUNDARY
PROPOSED PERMIT ADDITION
PROPOSED CHAIRLIFTS
WILDERNESS BOUNDARY
YAKIMA CO.
LEWIS CO
White Pass Campground
Leech Lake
4412
Falls
White Pass
Creek
Picnic Area
Knuppenburg Lake
Ridge
#1
#2
#3
#4
#5
#6
#7
5961
MID MTN LODGE
5401
CREST
CASCADE
Hogback Ridge
6375
Hogback Mtn
6789
Miriam Lake
4400
4800
5200
5600
6000

Notices

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This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

DEPARTMENT OF AGRICULTURE

Forest Service

White Pass Ski Area Expansion; Intent To Prepare Environmental Impact Statement

AGENCY: Forest Service, USDA.

ACTION: Notice of intent to prepare an Environmental Impact Statement.

SUMMARY: The Forest Service will prepare an environmental impact statement (EIS) for a proposal to expand the White Pass Ski Area Special Land e Permit boundary to allow for wnhill and cross country skiing in the 00-acre area that was withdrawn from the Goat Rocks Wilderness by the Washington State Wilderness Act of 1984 and an additional 500 acres of National Forest administered land. This proposal is located on the Packwood Ranger District of the Gifford Pinchot National Forest in Lewis County and the area of land is administered by the Naches Ranger District of the Wenatchee National Forest through a Memorandum of Understanding. The agency invites written comments and suggestions on the scope of the analysis. In addition, the agency gives notice of the full environmental analysis and decision-making process that will occur on the proposal so that interested and affected people are aware of how they may participate and contribute to the final decision.

DATE: Comments concerning the scope of the analysis must be received by October 1, 1988.

ADDRESS: Submit written comments and suggestions concerning the scope of the analysis to Sonny J. O'Neal, Forest Supervisor, Wenatchee National Forest, 01 Yakima St., P.O. Box 811, enatchee, Washington 98807–0811.

R FURTHER INFORMATION CONTACT: Direct questions about the proposed action and EIS to Phillip D. Glass, Recreation Staff Officer, Wenatchee National Forest at the above address, telephone (509) 662–4332, or Donald Rotell, District Ranger, Naches Ranger District, Wenatchee National Forest, 10061 Highway 12, Naches, Washington 98937, telephone (509) 653–2205.

SUPPLEMENTARY INFORMATION: The EIS will be prepared in accordance with existing approved land and resource management plans. The document will discuss whether to allow expansion of the existing ski area to the area in question and what restrictions may apply to the expansion area. The proposal encompasses about 1300 acres.

In preparing the EIS, the Forest Service will identify and consider a range of alternatives for this site. A range of alternatives will be developed and examined to deal with the significant issues developed during the scoping process. One alternative will include the no action alternative. Other alternatives will consider different intensities of development with or without special management requirements.

Sonny O'Neal, Forest Supervisor, Wenatchee National Forest, Wenatchee, Washington, is the responsible official.

Public participation will be especially important at several points during the analysis. The first point is during the scoping process (40 CFR 1501.7). The Forest Service will be seeking information, comments, and assistance from Federal, state and local agencies, and other individuals or organizations who may be interested in or affected by the proposed action. This input will be used in preparation of the draft EIS. The scoping process includes:

1. Identifying potential issues.
2. Identifying issues to be analyzed in depth.
3. Eliminating insignificant issues or those which have been covered by a relevant previous environmental analysis.
4. Exploring additional alternatives.
5. Identifying potential environmental effects of the proposed action and alternatives (i.e., direct, indirect, and cumulative effects and connected actions).
6. Determining potential cooperating agencies and task assignments.

Public meetings will be held in eastern and western Washington. Notice of meeting dates and locations will be published in local newspapers and posted in public buildings.

The draft EIS is expected to be filed with the Environmental Protection Agency (EPA) and to be available for public review by March 1989. At that time EPA will publish a notice of availability of the draft EIS in the Federal Register.

The comment period on the draft EIS will be 45 days from the date the EPA's notice of availability appears in the Federal Register. It is very important that those interested in the management of the proposed. White Pass Ski Area expansion participate at that time.

To be the most helpful, comments on the draft EIS should be as specific as possible and may address the adequacy of the statement or the merits of the alternatives discussed (see The Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act at 40 CFR 1503.3). In addition, Federal court decisions have established that reviewers of draft EIS's must structure their participation in the environmental review of the proposal so that it is meaningful and alerts an agency to the reviewers' position and contentions. *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553 (1978), and that environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final EIS. *Wisconsin Heritages, Inc. v. Harris*, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). The reason for this is to ensure that substantive comments and objections are made available to the Forest Service at a time when it can meaningfully consider them and respond to them in the final.

After the comment period ends on the draft EIS, the comments will be analyzed and considered by the Forest Service in preparing the final EIS. The final EIS is scheduled to be completed by November 1989. In the final EIS the Forest Service is required to respond to the comments received (40 CFR 1503.4). The responsible official will consider the comments, responses, environmental consequences discussed in the draft EIS, and applicable laws, regulations, and policies in making a decision regarding this proposal. The responsible official will document the decision and reasons for the decision in the Record of Decision. That decision will be subject to appeal under 36 CFR 211.18.

Sonny J. O'Neal,
Forest Supervisor.

[FR Doc. 88–18669 Filed 8-17-88; 8:45 am]

BILLING CODE 3410-11-M

PUBLIC SCOPING RESPONSE FORM
FOR THE
WHITE PASS SKI AREA EXPANSION PROPOSAL

Expansion of the White Pass Ski Area has been proposed by the White Pass Company, and the Forest Service is now seeking public comment to assist in development of an Environmental Impact Statement on the proposal. We would like your thoughts on the important issues, concerns, and alternatives that should be included in the EIS. Please use this postage-paid response form to give us your comments, or, feel free to send a personal letter if you prefer.

We need your response no later than November 21, 1988.

TENTATIVE ALTERNATIVES - Please share your thoughts on the current range of alternatives. We would also like to know if there are other alternatives which have not been idendified that you feel should be considered in the EIS.

POTENTIAL ISSUES TO BE ADDRESSED - We would like to know which management issues are important to you and should be analyzed in depth in the EIS. Please feel free to suggest additional issues that should be addressed in the EIS.

WHITE PASS COMPANY PROPOSAL TO EXPAND THE WHITE PASS SKI AREA
ANALYSIS OF PUBLIC COMMENT

On October 7, 1988, the USDA Forest Service asked for public comment on a proposal by the White Pass Company to expand the White Pass Ski Area. The proposal called for expansion of the existing ski area by the construction of three chair lifts and a mid-mountain lodge, largely on lands withdrawn from the Goat Rocks Wilderness by the 1984 Washington State Wilderness Act.

A letter asking the public to help identify important issues and alternatives to be considered in an Environmental Impact Statement (EIS) was sent to an initial mailing list of approximately 174 individuals, agencies, and groups who had previously expressed interest in this proposal.

In addition to the mailing, two public meetings were held to provide information and encourage response. One meeting was held in Yakima on November 9, 1988, and the other in Randle on November 10, 1988.

The information packet mailed out, provided at meetings, and handed out through other public contacts, included an outline of eight tentative alternatives and five potential issues to be addressed in the EIS. The packet also included a map showing the location of the tentative alternatives. A postage-paid response form was enclosed which indicated the closing date for comments as November 21, 1988.

COMMENT RECEIVED

A total of 200 written comments was received. Of these, 181 were from individuals. The remaining 19 came from various user groups, agencies, and organizations.

They include:
- Washington Trails Association
- Washington State Dept. of Transportation
- PNW Ski Areas Association
- The Cascadians
- Wenatchee Mountain, Inc.
- Washington State Dept. of Ecology
- Ellensburg Cross-country Ski Club
- Yakima Indian Nation
- Washington Wilderness Coalition
- PNW Ski Association
- Sierra Club, Cascade Chapter
- The Mountaineers
- Washington Dept. of Wildlife
- Greater Yakima Chamber of Commerce
- Federal Highway Administration
- Washington Environmental Council
- City of Yakima
- Pacific Crest Trail Advisory Council
- Blue Ribbon Coalition

(MORE)

Of the total 200 responses, 134 were from locations west and southwest of the Cascades (23 from Tacoma, 16 from Olympia, 16 from Chehalis, 13 from Centralia, 12 from Seattle, and 7 from Gig Harbor--one of these letters was signed by 31 people, 20 of whom noted Gig Harbor as their home address). A number of the letters from southwest Washington were from individuals who identified themselves as ski school students who travel to White Pass for lessons.

62 responses were from locations east of the Cascades (38 from Yakima). Only 3 responses were received from out of state (Portland, Oregon; Vancouver, British Columbia; and Pocatello, Idaho), and one response had no return address or postmark.

COMMENT ON POTENTIAL EXPANSION/ALTERNATIVES

Of the 200 total respondents:

--155 expressed support for some form of chair lift expansion at White Pass.
-- 9 expressed support for alt. #1 ("no action").
-- 3 expressed opposition to expansion in general
-- 2 expressed support for alt. #8 (lodge/cross-country ski trails only)

Of the 155 who indicate support for expansion, 116 note particular support for one of the tentative alternatives as outlined in the following pages.

(MORE)

Alternative #7 - Build Chair Lifts 5, 6, and 7 and Mid-Mountain Lodge

This alternative was favored by 99 respondents

In general, folks who support this alternative seem to want "more of an already good thing." Comments extolling the good family atmosphere and quality of the White Pass Ski Area are coupled with those criticizing the currently crowded ski slopes and long lift lines. The recreation demands of future generations is noted as an important reason for support of expansion.

Some respondents also felt this expansion alternative provides the best overall benefits and opportunities for all recreationists. They indicated that cross-country skiers would not suffer because the state offers such a wealth of terrain in many areas suited to that sport. They also felt that additional lifts would actually enhance cross-country skier access to backcountry areas.

Some individuals felt that expansion of downhill skiing is warranted because of the greater numbers of alpine skiers who use the White Pass area as opposed to the smaller numbers of nordic skiers.

Respondents also noted the geographic and monetary limitations for development of new downhill ski areas in the state as reasons to expand at existing sites. Several respondents mentioned that expansion would provide the opportunity for White Pass to become a destination ski resort.

In addition, respondents pointed out the potential for an expanded ski area to keep recreationists and their dollars in the state, while also providing an attractive option to recreationists from out of state. They felt that local communities would benefit from recreation-generated revenue and an increase in job availability.

Several respondents also felt that ski area expansion was the intent of Congress when the decision was made to delete a portion of the Goat Rocks Wilderness from Wilderness classification.

Alternative #5 - Build Chair Lifts 5 and 7 and Mid-Mountain Lodge

This alternative was favored by 6 respondents

Support comments noted that this alternative seemed a reasonable choice at less cost for both downhill and cross-country skiers.

One individual felt that this alternative or Alternative #6 offers the most range of activity to the largest number and variety of people. This same respondent would also be in favor of Alternative #7 to serve greater numbers and levels of alpine skiers.

Two respondents felt it was important to preserve the area west of lift #6 from development to provide safe terrain for cross-country skiing.

(MORE)

Alternative #4 - Build Chair Lifts 5 and 6 and Mid-Mountain Lodge

This alternative was favored by 4 respondents

Respondents who favored this alternative indicated that both alpine and nordic skiers would benefit from the increase in terrain available.

It was felt by one individual that chair #5 needs chair #6 to complement each other to access good skiing in the entire area, thereby justifying the expense of development.

Another respondent would support the addition of chair #7 later if implementation of this alternative does not markedly change the ecological balance in the area.

Alternative #2 - Build Chair Lift 7 and Mid-Mountain Lodge

This alternative was favored by 3 respondents

Those who expressed support for this alternative felt it would have the least damaging ecological impact on the Hogback area and cross-country skiing, and it would still provide for some expansion of the ski area.

One respondent noted that if only chair #7 is built, the need for a mid-mountain lodge appears questionable.

Alternative #6 - Build Chair Lift 6 and 7 and Mid-Mountain Lodge

This alternative was favored by 2 respondents

One respondent expressed support for this alternative because chair #7 has good vertical elevation and chair #5 is too flat.

The other respondent noted that this alternative would provide more terrain for various levels of skiers and would draw more people to White Pass who might otherwise go elsewhere. This individual would also support Alternative #5 for the same reasons.

Alternative #3 - Build Chair Lift 5 and Mid-Mountain Lodge

This alternative was favored by 2 respondents

One respondent indicated support for this alternative because it would discourage uphill travel for the unprepared alpine skier while opening up desired terrain for the usually better prepared and equipped nordic telemark skier.

The other respondent felt that this alternative would be the least disturbing to the fragile environment of the Goat Rocks Wilderness but suggested that lift #5 be shortened to terminate at the 6,000 foot level.

(MORE)

General Support for Chair Lift Expansion

There were 39 respondents who expressed support for some form of chair lift expansion but did not identify a favored alternative

Reasons for support given by these individuals closely mirror those given by proponents of Alternative #7. It is also interesting to note that 12 of the respondents in this category identified themselves as participants in the ski school at White Pass. A discussion of reasons for ski expansion support follows:

Those who identified themselves as ski school participants (either as instructors or students) feel expansion is necessary to the continued quality of ski school instruction at White Pass. The note that expansion would ease the crowding on slopes and open up new and more varied ski runs to experience.

In general, respondents indicated that expansion is needed in order to improve downhill skiing opportunities for current as well as future users. They noted that ski runs are currently limiting, and the demand for more and better runs is apparent. Long lift lines and crowded slopes were cited.

Some individuals noted that it was Congressional intent to allow ski area expansion into the Hogback area by virtue of its deletion from classified Wilderness. They felt that ski lift expansion would benefit a wide range of recreational pursuits, in summer as well as winter, in addition to alpine skiing. They noted that downhill and cross-country skiers should be able to continue to share the area as in the past.

There were four separate but identical letters which stated that development of Hogback Ridge would be in the best interest of the public and that special interest groups should not control public lands. These letters noted that 100,000 tickets were sold for round trip lift use last year as compared to 2,000 one-way lift tickets. They felt this represented about a .2% usage by cross-country skiers, which would not warrant control of the land over the majority of users.

Several respondents also noted the positive economic impact that ski area expansion could have on local communities and the county, in brining in additional revenue and strengthening the tourist industry.

NON-DEVELOPMENT COMMENT

Alternative #1 - No Action

This alternative was favored by 9 respondents

Generally, those who expressed support for this alternative felt that the Hogback area was unique from a cross-country ski perspective and that it and the adjacent Wilderness area would be jeopardized by any proposed expansion.

Other concerns expressed about development were for hazards to displaced cross-country skiers, endangerment and degradation of cultural and spiritual places, and ecological and wildlife habitat damage. It was also noted that the other tentative alternatives were unacceptable. (MORE)

General Opposition to Chair Lift Expansion

There were 3 respondents who expressed general opposition to chair lift expansion

One respondent expressed concern about ecological damage as a result of development, and felt that Hogback Basin should be left as it is because it is too valuable for cross-country skiing, and this expansion could be a first step toward future expansion into other areas like Miriam Lake Basin. This individual also felt that expansion would result in higher lift ticket prices that would make the area too expensive for family skiing.

Another individual felt that improvements should be made within the existing ski area boundary and did not want tax dollars to pay for expansion. This person also felt that White Pass would be making an investment that was beyond what they could expect in return.

A third respondent questioned the suitability of the terrain in the Hogback area for lift-served skiing. It was noted that the slopes are too gentle and must be packed, and there might be problems with windswept snow near the summit. It was also felt that a lift to Hogback will do nothing to solve the problem of lift lines for Pigtail Peak and the problem of the lower rock cliff band.

Alternative #8 - Construct Mid-Mountain Lodge and Cross-Country Ski Trails in the Hogback Basin

This alternative was favored by 2 respondents

One respondent felt that the other alternatives seemed more restrictive and thought that, under Alternative #8, skiing could be advanced further into the spring/summer season by using only the upper slopes.

The other individual thought this alternative needed consideration because it would help meet the growing demand for cross-country skiing facilities in the state. They also felt it would complement the existing trail system around Leech Lake and provide cross-country skiing opportunities earlier and later in the season.

(MORE)

Preferred New Alternatives

There were 15 new alternatives proposed by respondents

Eleven respondents offered a total of 15 alternatives which are summarized as follows:

"No-Development-of-Hogback" Alternative

There are four reasons why this alternative should be considered. Hogback is unique from a cross-country skiing standpoint and is one of the finest backcountry winter rec areas in the state; a new alternative could still allow expansion into areas outside Hogback Basin.

Cultural significance of Hogback Basin--known as "Kamiakin's place" to Yakima Indian Nation; During Yakima Indian War of the 1850's, Chief Kamiakin used Hogback Basin as a refuge from the U.S. Army, and the area contains many burial sites and old campsites. Ground disturbing activities could harm cultural values and infringe of tribe's treaty rights when land was ceded to the U.S. in 1855.

Development of Hogback could lead to further deletion of land from Goat Rocks Wilderness. General manager of White Pass has already alluded to this possibility in a recent Longview Daily News interview. The EIS should consider whether devel of Hogback Basin would create a strong demand for further deletions of Wilderness acreage.

Impact to the PCNST would be in conflict with the National Trails Act of 1968 which prohibits development in the vicinity of a national scenic trail when it is imcompatible with the purpose for which the trail was established. The EIS should consider whether construction of mechanized lifts, roads, and other ground-disturbing activities are consistent with current scenery and solitude available on that segment of the PCNST.

Expansion of White pass ski area outside of Hogback Basin

This alternative would preclude expansion of developed facilities within the pre-1984 boundaries of Goat Rocks Wilderness.

Reclassify the area withdrawn as wilderness

There is a demonstrated lack of knowledge by the Forest Service and White Pass as regards the history of environmental legislation pertaining to this subject.

Build new ski lifts north of SR 12

Build mid-mountain lodge and new ski lifts north of SR 12

Build mid-mountain lodge. Operate limited snow cat service to Hogback Ridge

(MORE)

best copy available

New Alternatives, cont'd.

Build mid-mountain lodge, build new lifts north of SR 12, operate limited snow cat service to Hogback Ridge

Build new lifts east of existing lifts

Development of chairlift #7 and construction of x-country ski trails in the upper Hogback Basin

An alternative that opens up "new" terrain for skiing

This alternative would include thinning trees within the existing permit area to increase snowpack and remove hazards, a few new loops on the nordic track, a nordic base lodge, new parking lots, an improved septic system, and construction of lift #7 and associated ski runs. It would provide additional skiing for both downhill and track skiers without reducing the backcountry skiing opportunities. Preliminary alternatives don't present much of a range; they all address additional ski lifts and the same mid-mountain lodge.

An alternative that allows backcountry skiers to have a large area far away from the developed ski facilities

Consider alternatives that have all new facilities east of the present ski area and/or entirely within the present ski area boundaries.

A lift down to Knuppenberg Lake

This would meet most of the White Pass Co. requirements. Snow quality at White Pass is not suitable for destination type ski area; expansion along Hogback Ridge would impact the PCNST views, and this corridor is too unique and valuable to sacrifice to development.

The upper Hogback Ridge topography is not suitable for downhill skiing. It is not steep enough and any cutting of timber would change the character of the slope. Snow grooming would change delicate ground cover vegetation and low lying heather along ridgetop could not withstand compaction from grooming and concentrated skiing. Once lost, it would be difficult to replace heather because area is an exposed high elevation site vulnerable to any impacts with growing season measured in weeks only.

Soils on Hogback Ridge could not withstand impacts of construction, lodges, or roads. Any lift along the PCNST corridor would eventually result in a road of some kind. The soils in the area probably could not support a sewage disposal system.

Goat Rocks Wilderness is crowded in on all sides by development and logging activity now, and the upper chair lifts would further impact the view and experience of Wilderness users. Winter use in Wilderness has increased dramatically since present chair lifts were built, and use will continue to grow at an inappropriate rate if upper lifts are constructed. It is not valid that cross-country skiers and snowshoers access the Hogback Ridge area via chairlift and therefore would not be concerned about further development.

(MORE)

New Alternatives, cont'd.

Build chairs #6 and #7

Establish the top of chair 6 low enough to eliminate conflict with cross-country skiers going to Hogback, as well as limit its visibility from Wilderness areas and the PCNST. This would also provide expansion to serve both intermediate and downhill skiers. Beginning skiers are better off remaining closer to lodge facilities.

Destination ski resort

If White Pass desires to become a regional ski area, there should be an alternative that maximizes that possibility by describing what a regional ski area looks like and the potential for White Pass to provide it without constraints (Wilderness, overnight lodging, policy, etc.). Include the necessary infrastructure (overnight accommodations--Packwood, Rimrock?), and a discussion of whether the necessary skier facilities there would make an effective four-season resort.

No Mid-Mountain Lodge

There should be some development of alternatives that don't include a mid-mountain lodge.

PUBLIC COMMENT ON THE FIVE TENTATIVE ISSUES

Uniqueness of the Area

A total of 36 individuals commented on this issue. Of that number, 12 individuals commented that the area is unique from a cross-country skiing standpoint, and felt that development would ruin that opportunity.

Another 13 respondents felt that the area is unique because of its potential as a lift-served downhill ski area and would like to see opportunity for that.

Other general comments were offered about the low use of the area by cross-country skiers and the possibility of continued shared use of the area by both kinds of skiers, even with development, if there is a well managed trail control program by White Pass Company.

(MORE)

Issues, cont'd.

Effects Upon Adjacent Wilderness Values

A total of 39 individuals commented on this issue. Of these, 14 respondents expressed a concern that values such as scenic views, the Pacific Crest National Scenic Trail, ecology of the area, and solitude will be adversely affected by development. Several respondents also questioned whether the chair lifts would run in the summer season. If so, they felt it would be a major negative impact on Wilderness users, and on the Wilderness resource.

Another 17 individuals felt that effects on Wilderness would be minimal because of the small amount of land included in the development as opposed to the magnitude of the total Wilderness area. They also noted that not allowing the lifts to run in summer would avoid detrimental effects in the off-season. Several of these individuals felt that White Pass Company has done a good job in the past of managing lands adjacent to Wilderness and would continue to do so if expansion took place.

Benefits to the Recreating Public

A total of 38 respondents commented on this issue. Of these, 20 individuals felt that expansion of the ski area would provide significant benefits to the recreating public. They noted that expansion would serve a growing population of both downhill and cross-country skiers and keep skiers from going to other ski areas.

Five individuals simply stated that this is an important issue which should be considered carefully in the EIS. Several other individuals expressed a desire for more study of actual skier demand and needs as well as the suitability of the terrain in the Hogback area for development.

One respondent thought a better benefit to the public would be to increase lift capacity within the boundaries using high speed quad chair lifts, without destroying the unique Wilderness experience for cross-country skiers.

Another respondent, the Pacific NW Ski Areas Association, called for an inventory of downhill terrain as compared with existing and potential inventory of cross-country ski terrain. They also felt is was necessary to consider the desirability and feasibility of expanding alpine skiing areas in the state as compared with developing new alpine ski areas. The demand for alpine terrain as opposed to cross-country terrain at White Pass also needs study, they noted.

(MORE)

Issues, cont'd.

Hazards to Displaced Cross-Country Skiers

A total of 30 respondents commented on this issue. Of these, 11 individuals don't see this as a problem issue. They mention that skiers will go wherever the snow is best for their sport, that there is still plenty of cross-country terrain to choose from, and that the development should actually add a level of safety through management of the area by White Pass Company.

Nine individuals expressed a concern that cross-country skiers would be displaced into more hazardous terrain.

Four respondents commented that this hazard should be weighed against the current hazards to downhill skiers who ski off established runs to find good snow. They felt that cross-country folks should still be able to go into areas that are safe and have been used by them for years.

Resource Capability

A total of 28 respondents commented on this issue. Of these, 19 individuals expressed concern about potential detrimental effects to the resources as a result of development. They felt this issue needed careful consideration as to impacts on soil, water quality and quantity, and sensitive plants and animals. Some noted that Hogback Mountain is a particularly fragile area.

One individual felt that most lift tower construction would cause only minimal damage, but that construction of the lift from Knuppenburg Lake would cause substantial damage to the terrain.

Four individuals felt that current technology and the demonstrated good past management practices will mitigate any negative impacts on resources.

Some respondents provided suggestions to limit resource impacts such as the possibility of placing lift towers by helicopters to limit road construction, and not allowing chair lift use during the summer.

NEW ISSUES IDENTIFIED BY THEY PUBLIC:

Sewage Treatment

A total of 9 respondents felt that sewage treatment is an issue that should be addressed in the EIS. There was some feeling that the current situation at White Pass is inadequate and a concern that it could worsen if use at the site increases.

The response from the Dept. of Ecology noted a need to discuss the proposed method of wastewater treatment and disposal in the EIS as well as a need to identify factors such as potential numbers of users and impact of water withdrawal on stream flows.

(MORE)

New Issues, cont'd.

Wildlife

A total of 5 respondents felt there should be a wildlife issue addressed in the EIS. The response from the Washington State Dept. of Wildlife outlined concerns about impacts on big game who use the Hogback area; impacts on old growth dependent species, particularly spotted owls; impacts of summer use of chair lifts on wildlife; and impacts of increased sewage system needs on the water quality of Leech Lake, its tributaries, and fishery values. They called for detailed analysis of these concerns in the EIS.

One respondent felt the development proposal would not have a significiant impact on wildlife, and that this should be presented in the EIS.

Anticipated Skier Needs

A total of 6 respondents felt that anticipated skier needs warranted study in the EIS. Several of individuals thought use trends should be studied to determine actual skier needs, and questioned whether White Pass could actually become a destination ski resort. One respondent would like to see the possibility of additional lodges and low cost overnight accomodations studied in the EIS.

Economics

A total of 15 respondents mentioned economics as a potential EIS issue. Of these, most individuals felt that expansion would enhance local and regional economies.

One respondent thought each alternative should be evaluated against its relative impact on the local economy.

Three respondents felt there would be negative economic impacts as a result of development. There was concern for where the extra skiers would come from, if cross-country skier dollars would be lost, and if construction of lifts into the Hogback area was economically feasible.

The response from the Pacific NW Ski Areas Association felt that the comparative markets for alpine skiing and for cross-country skiing in the state should be considered. They also felt consideration should be given to the comparative investment and risk in the development of alpine ski facilities and the development of cross-country skiing. The comparative benefits in the form of employment and taxes to the county and state frm the alpine ski development as compared with the cross-country ski development should also be studied, they noted.

Appearance of Ski Area

Three respondents noted that the appearance of the ski area should be an issue considered in the EIS. The use of the right colors and a building that is not just a big gaudy lodge are important considerations so that there is minimum visual impact on the surroundings.

(MORE)

New Issues, cont'd.

Traffic and Parking

A total of 20 respondents mentioned traffic and parking as a potential issue. Of these, 16 individuals felt that increased parking facilities is a need that should be addressed in the EIS. The Washington State Dept. of Transportation commented on the possible need for improved parking and left-turn channelization should traffic on Highway 12 increase as a result of ski area expansion.

Mitigation Measures

Two respondents noted that there is a need to address mitigation measures in the EIS. One response cited the Ninth Circuit Court decisions, e.g., Methow Valley Citizens Council v. Regional Forester, in which it was directed that any EIS must consider in detail the ability of proposed mitigation measures to actually alleviate anticipated adverse effects. It futher calls for full compliance with NEPA's requirement to assess in detail the project's impacts, alternatives, and mitigation measures.

The other respondent indicated interest in what appropriate mitigation measures might constitute in order to reduce or minimize effects of proposed development.

Location of Mid-Mountain Lodge

Two respondents felt that the location of the mid-mountain lodge was an issue to be studied. One individual suggested locating it higher on the mountain, closer to existing chairs 1 and 2 to make it more convenient for winter use and open up the possibility of summer use.

The other respondent thought the mid-mountain lodge should be built closer to chair 7 if the proposed chairs 6 and 7 are built. Consideration should also be given to where snow grooming equipment will be housed in relation to the mid-mountain lodge location.

Miscellaneous Issues

Issues mentioned by one individual each include the following:

--Use of the area by handicapped skiers should be addressed; without mechanical means, this group of users cannot enjoy the sport and the mountains.

--The possibility of warming huts should be studied.

--Consideration should be given to the power demand this proposal will create; will this and additional skiers have a negative effect on energy supplies?

--Public Information; scoping meetings should be held in Olympia, Centralia, Portland/Vancouver, and Seattle. When the EIS is printed, have open house meetings in those same cities.

(MORE)

New Issues, cont'd.

Issues of the Gifford Pinchot National Forest/Packwood Ranger District

Present Impacts to Wilderness to Consider in EIS Development:

What is current use of PCNST from Hwy 12 south to Wilderness boundary? Summer study may be required for documention of this.

What is current use of summer chairlift by hikers going into Goat Rocks Wilderness? How does policy of discounted prices for rides for large parties conflict with party size limits on adjacent Wilderness? Documentation of this use should be included even if expansion proposals do not include additional summer use of chairlifts.

Does the current amount of summer and winter use in Wilderness adjacent to the ski area meet guidelines for number of encounters under its Wilderness Rec Opportunity Spectrum assigned capacity?

What are impacts of summer programs hosted by White Pass on the Wilderness--mtn. bike races, running clinics, bluegrass concerts and free chairlift rides? Are aware of previous violations, Naches RD should be able to provide documentation.

Why was a sign saying "Leaving Goat Rocks Wilderness" required a few summer back on the PCNST adjacent to the new Wilderness boundary? It was a unique sign that may give an indication of how summer users reacted to encountering the ski area as they hiked the PCNST.

Future Impacts to Wilderness to Consider in EIS Development:

Social impacts to PCNST users can only be understood if the ID team takes the hike leading away from the highway, into open meadows, and out to a ridge where the orange poles of future tower locations are suddenly encountered.

Full discussion of what is proposed for the mid-mountain lodge is necessary. Visual impact to Goat Rocks or Wm. O. Douglas Wilderness would vary with materials used for construction, building design, and colors.

Summer events hosted by White Pass could change under expansion plans and should be displayed in DEIS. Need complete discussion of wilderness/ski are coexistence need to look closely at summer use--visitor demand needs discussion should include how much summer use would be necessary for development of particular facilities (if more mountain bike trails are proposed, how many users would be needed to be financially successful? These specifics will assist in evaluation of impact potential.

A legal survey and posting of Goat Rocks Wilderness boundary is needed in permittee's area. May be an opportunity for shared costs. If basins further in the Goat Rocks Wilderness are looked at for potential backcountry skiing, will the DEIS discuss waiving party size limits, number of group encounter standards, and avalanche control methods for this are of Wilderness?

(MORE)

COMMENTS BY LOCAL, STATE, AND FEDERAL OFFICIALS

Greater Yakima Chamber of Commerce

The Board of Directors urged approval of the proposed White Pass Ski Area expansion, citing that the developoment will not only be a major addition to the area, but will have a long term positive economic impact on Yakima County's tourism industy. They praised the operators of White Pass Ski Area for their great care for the environment over the years and noted that the area is a pleasant summer attraction as well. They feel the expansion will add additional overnight stays in the Yakima and surrounding areas, positively impacting the winter economy, and opening up new opportunities for the Puget Sound skier to have a closer overnight ski area for use.

City of Yakima

The Yakima City Council expresses support for the concept of an expanded White Pass Ski Area as proposed by White Pass. They feel an expanded facility will better serve the winter recreation needs of Yakima residents as well as contribute significantly to Yakima's tourism potential. A larger ski area would have a long term positive economic impact upon the City of Yakima and Yakima County. They suggest that the EIS consider a wide range of recreational uses and opportunities consistent with maintenance of environmental quality.

Confederated Tribes and Bands, Yakima Indian Nation

The Yakima Nation favors a "No Action" alternative due to their concerns for both cultural/spiritual places and wildlife and its habitat within the proposed expansion area which could be endangered or degraded if the action were allowed to proceed.

State of Washington Department of Ecology

The Dept. had three areas of comment which included a request that the EIS discuss the proposed method of domestic wastewater treatment and disposal; that water quality impacts to streams and lakes in the area and immediately downstream from the project be evaluated; and that the EIS identify the increased numbers of users, the current water supply capability, the ability of the water supply to serve the additional number of users, the impact of additional withdrawal of water on the base flows of streams in the area, and the effect on the natural environment of these streams. They also noted that cross-country skiers would place the least demand on the water supply.

(MORE)

Comments by Local, State, and Federal Officials, cont'd.

State of Washington Department of Wildlife

The Dept. of Wildlife commented on the fact that the project area is used by big game in the snowfree season and they suspect the area also provides habitat for old growth dependent species such as pine martin. They request the DEIS describe how the proposal will affect old growth forest habitat and how much of that habitat will be removed and/or fragmented.

They also recommend that the area be resurveyed for spotted owl habitation, and that if the results are not available at the time of DIES publication, the DEIS should discuss how the proposal would be altered should the presence of spotted owls be confirmed.

Concern was expressed about potential summer use of ski lifts. They would like the DEIS to estimate the amount of summer use expected, what measures will be taken to mitigate impacts to the fragile alpine environment of the Hogback Mountain summit and ridge crests, and describe how impacts of summer use will be monitored.

The adequacy of the sewage system in handling additional numbers of people was also of interest to the Dept. They expressed a desire to see a discussion of this and the impacts to water quality of Leech Lake and its tributaries in the DEIS. If facilities are developed at the base of proposed Lift #7, the DEIS should contain similar information regarding Millridge Creek.

They also suggested that the DEIS should contain a discussion of the probable extent and impacts of development expected to occur as a result of successful implementation of the proposal.

Washington State Department of Transportation

This agency indicated a primary concern for the effect of additional traffic on State Highway 12. They note that, as a minimum, improved parking and left-turn channelization will probably be required. They indicated an interest in providing more specific comments when a more definitive proposal is available.

U.S. Dept. of Transportation/Federal Highway Administration

Their response generally noted appreciation at the notification of the project proposal. They indicated that here are no federal highway funds involved in the proposal and they have no comments.

PETITIONS RECEIVED

In addition to the 200 individual written responses received as public comment on the White Pass Company proposal to expand the White Pass Ski Area, two petitions were received, both signed by individuals in the Yakima area and both indicating support for Alternative #7.

One petition containing 335 signatures, and the other contained nine signatures.

Of the petition with 335 signatures, the reasons for support of Alternative #7 are summarized below:

Uniqueness of the Area

The petition indicated that there are three types of cross-country ski techniques suited to terrain within the existing and proposed expansion area of the White Pass Ski Area. With regard to use of the Hogback Basin area, it was felt that only the cross-country touring type skier uses this area, and that those users comprise only 10 to 20 per cent of cross-country skiers. It was further noted that if this type of cross-country skier required solitude, seclusion, and safety, there are several areas available elsewhere in the state that are comparable to Hogback Basin.

The petition also stated that, upon contacting a number of developed ski areas with a cross-country skiing component, it was found that there "was no evidence of any user conflict or safety compromise with mixed skiers sharing the ski areas, slopes and terrain.

Additionally, it was felt that the expansion would actually enhance the experience and safety of skiers employing most all techniques. There will be more area for all skiers to enjoy, and a larger area means skiers can spread out for increased safety and benefit from ski patrol access in case assistance is needed.

Also mentioned was the possibility of having to discontinue special lower one-way ticket prices for cross-country skier use of chairlifts if the expansion cannot take place. It was felt the practice might not be cost-effective, and full price tickets for cross-country skiers would be the alternative.

Other Alternatives

The petition also commented on Alternatives #1 and #8. It was felt that backcountry skiers in Hogback historically backpack their food into the area and have not need for the existing or proposed lodge. It was also noted that construction of a mid-mountain lodge and maintenance of cross-country ski trails would not be cost-effective because the downhill, telemarker, and nordic skiers already have a new expanded main lodge and existing runs and trails to use.

Of the petition with nine signatures, the reasons for support of Alternative #7 are summarized below:

It was felt that winter use of the expanded area served by chairlifts would not cause adverse impact to soils and terrain. In response to concerns about soil damage to Knuppenburg Lake, it was felt that skier use could be controlled and directed away from the lake.

The petition also noted that the mere fact of additional ski lifts in the expanded area would serve to limit use of the area by a variety of summer season recreationists who it was felt tend to have a negative impact on the environment.

APPENDIX C

SPECIES LIST - ALPHABETICALLY BY FAMILY

SPECIES	FAMILY
Athyrium filix-femina	Polypodiaceae
Cystopteris fragilis	Polypodiaceae
Gymnocarpium dryopteris	Polypodiaceae
Polysticum munitum	Polypodiaceae
Chamaecyparis nootkatensis	Cupressaceae
Abies amabilis	Pinaceae
Abies lasiocarpa	Pinaceae
Picea engelmannii	Pinaceae
Pinus albicaulis	Pinaceae
Pinus monticola	Pinaceae
Pseudotsuga menziesii	Pinaceae
Tsuga heterophylla	Pinaceae
Tsuga mertensiana	Pinaceae
Achlys triphylla	Berberidaceae
Mertensia paniculata	Boraginaceae
Pachystima mysinites	Celastraceae
Antennaria lanata	Compositae
Arnica latifolia	Compositae
Arnica mollis	Compositae
Hieracium gracile	Compositae
Microseris alpestris	Compositae
Arctostaphylos uva-ursi	Ericaceae
Cassiope mertensiana	Ericaceae
Menziesia ferruginea	Ericaceae
Phyllodoce empetriformis	Ericaceae
Pyrola secunda	Ericaceae
Rhododendron albiflorum	Ericaceae
Vaccinium scopulorum	Ericaceae
Vaccinium caespitosum	Ericaceae
Juncus mertensianus	Juncaceae
Lupinus latifolius	Leguminosae
Clintonia uniflora	Liliaceae
Erythronium montanum	Liliaceae
Erythronium grandiflorum	Liliaceae
Smilacina racemosa	Liliaceae
Trillium ovatum	Liliaceae
Veratrum viride	Liliaceae
Xerophyllum tenax	Liliaceae
Calypso bulbosa	Orchidaceae
Goodyera oblongifolia	Orchidaceae
Habenaria saccata	Orchidaceae

SPECIES LIST - ALPHABETICALLY BY FAMILY

Listera cordata	Orchidaceae
Phlox diffusa	Polemoniaceae
Oxyria digyna	Polygonaceae
Montia cordifolia	Portulacaceae
Aquilegia fomosa	Ranunculaceae
Lutkea pectinata	Rosaceae
Potentilla flabellifolia	Rosaceae
Rubus spectabilis	Rosaceae
Rubus pedatus	Rosaceaea
Galium aparine	Rubiaceae
Leptarrhena pyrolifolia	Saxifragaceae
Mitella breweri	Saxifragaceae
Saxifraga tolmei	Saxifragaceae
Saxifraga punctata	Saxifragaceae
Tiarella unifoliata	Saxifragaceae
Castilleja parviflora	Scrophulariacea
Pedicularis bracteosa	Scrophulariaceae
Pedicularis contorta	Scrophulariaceae
Pedicularis ornithorhyncha	Scrophulariaceae
Veronica cusickii	Scrophulariaceae
Heracleum lanatum	Umbelliferae
Valeriana sitchensis	Valerianaceae

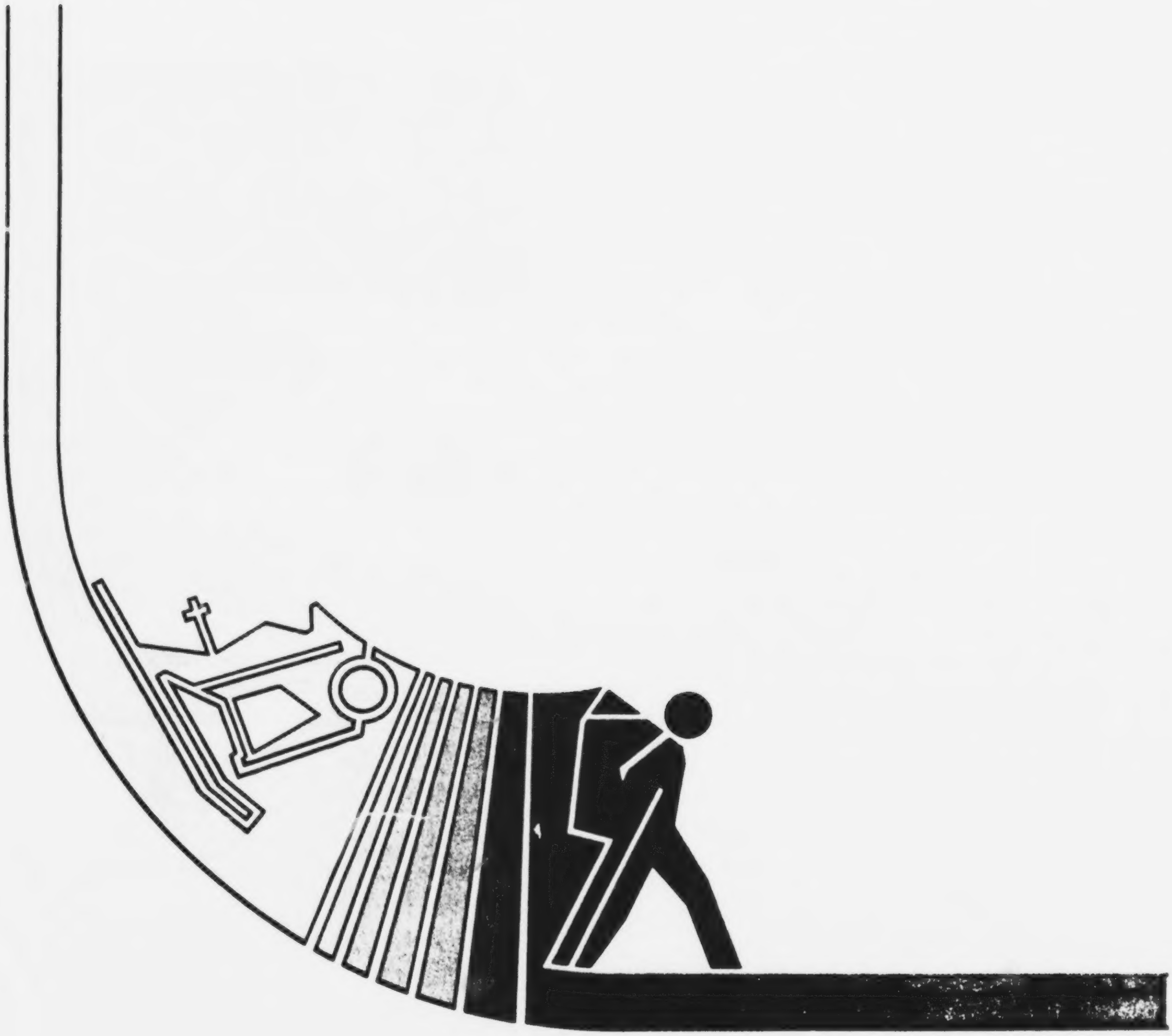
APPENDIX D

United States
Department of
Agriculture

Forest
Service

ROS

Users Guide



11—RECREATION

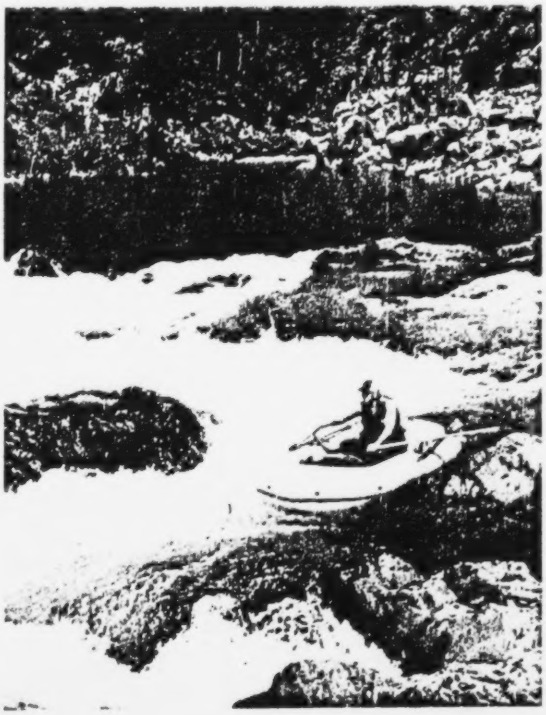
Many definitions of recreation exist, each emphasizing some slightly different aspect of this complex phenomenon called "recreation." In the *Recreational Use of Wild Lands*, Frank Brockman defines recreation as "the pleasurable and constructive use of spare time." Howard Danford, in *Creative Leadership in Recreation*, defines recreation as "any socially desirable leisure activity in which an individual participates voluntarily and from which he derives immediate and continuing satisfaction." *Webster* defines recreation as "refreshment in mind and body."

The sense of creativeness, refreshment and pleasure which the recreationist has while recreating or having a good time can be viewed as the recreationist "realizing satisfactory experiences." The recreationist attains these satisfactory experiences by participating in preferred recreation activities in preferred surroundings or settings. Therefore although the recreation resource manager manages settings, he or she does so to provide opportunities for recreation experiences and the benefits those experiences produce for individuals and society. Those experiences are influenced by many factors, the settings, the activities, other resources present, activities by managers, and by the values, expectations and other characteristics of the recreationists. These factors interrelate to define outdoor recreationists' needs and the way these needs are met by management action.

"Managing for recreation requires different kinds of data and management concepts than does most other activities. While recreation must have a physical base of land or water, the product—recreation experience—is a personal or social phenomenon. Although the management is resource based, the actual recreational activities are a result of people, their perceptions, wants, and behavior." (From: Final Report of the Committee of Scientists for Implementation of Section 6 of the National Forest Management Act of 1976, February 22, 1979, as published in the Federal Register, Part V, May 4, 1979, p. 26628.)

12—RECREATION OPPORTUNITY

The word opportunity is defined as a "combination of circumstances favorable for a purpose." The purpose or goal of the recreationist, as discussed above, is to realize satisfying experiences. This is done by participating in preferred activities in preferred environmental settings. Thus, recreation opportunity is "the availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired."



13—RECREATION OPPORTUNITY SPECTRUM

While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences. By managing the natural resource settings, and the activities which occur within it, the manager is providing the opportunities for recreation experiences to take place. Therefore, for both the manager and the recreationist, recreation opportunities can be expressed in terms of three principal components: the activities, the setting, and the experience.

For management and conceptual convenience possible mixes or combinations of activities, settings, and probable experience opportunities have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS) and is divided into six classes (Figure 1). The six classes, or portions along the continuum, and the accompanying class names have been selected and conventionalized because of their descriptiveness and utility in Land and Resource Management Planning and other management applications.

Each class is defined in terms of its combination of activity, setting, and experience opportunities (Table 1). Subclasses may be established to reflect local or regional conditions as long as aggregations can be made back to the six major classes for regional or national summaries. An example of a subclass may be a further breakdown of Roaded Natural into subclasses based on paved, oiled, or dirt surfaced roads, which in turns reflects amount of use, or a further breakdown of Primitive based upon aircraft or boat use.

The Recreation Opportunity Spectrum provides a framework for defining the types of outdoor recreation opportunities the public might desire, and identifies that portion of the spectrum a given National Forest might be able to provide.

Figure 1

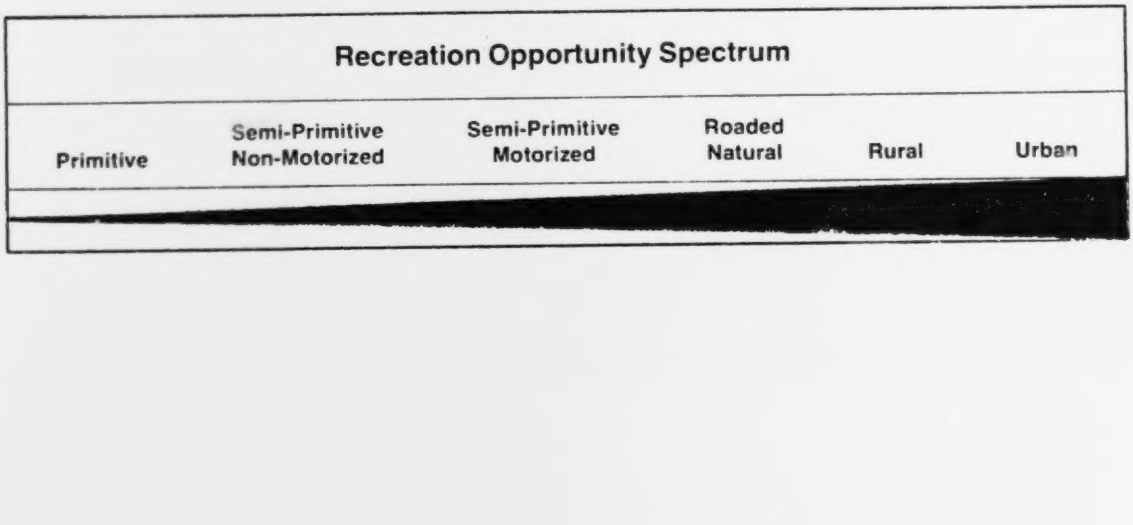


Table 1

ROS
Activity Characterization*

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban

Land Based (includes Aircraft):

- Viewing Scenery
- Hiking and Walking
- Horseback Riding
- Camping (all)
- Hunting (all)
- Nature Study (all)
- Mountain Climbing
- General Information

Water Based:

- Canoeing
- Sailing
- Other non motorized watercraft
- Swimming
- Fishing (all)

Snow and Ice Based:

- Snowplay
- X-Country Skiing/Snowshoeing

Land Based (includes Aircraft):

- Viewing Scenery
- Automobile (off-road use)
- Motorcycles and Scooters
- Specialized landcraft
- Aircraft (motorized)
- Hiking and Walking
- Horseback Riding
- Camping (all)
- Hunting (all)
- Nature Study (all)
- Mountain climbing
- General Information

Water Based:

- Boating (powered)
- Canoeing
- Sailing
- Other watercraft
- Swimming
- Diving (skin or scuba)
- Fishing (all)

Snow and Ice Based:

- Ice and Snowcraft
- Skiing, downhill
- Snowplay
- X-Country Skiing/snow-shoeing

Land Based (includes Aircraft):

- Viewing Scenery
- Viewing Activities
- Viewing Works of Human-Kind
- Automobile (includes off-road use)
- Motorcycles and Scooters
- Specialized landcraft
- Train and bus touring
- Aircraft (motorized)
- Aerial trams and lifts
- Aircraft (non-motorized)
- Hiking and Walking
- Bicycling
- Horseback riding
- Camping (all)
- Organization
- Camping (all)
- Picnicking
- Resort and Commercial services
- Resort Lodging
- Recreation Cabin use
- Hunting (all)
- Nature Studies (all)
- Mountain climbing
- Gathering Forest Products
- Interpretive Services (all)

Water Based:

- Tour Boat and Ferry
- Boat Powered
- Canoeing
- Sailing
- Other watercraft
- Swimming and waterplay
- Diving (skin and scuba)
- Waterskiing and water sports
- Fishing (all)

Snow and Ice Based:

- Ice and Snowcraft
- Ice Skating
- Sledding and Tobagganing
- Downhill skiing
- Snowplay
- X-Country skiing/snow shoeing

Land Based:

- Viewing Scenery
- Viewing Activities
- Viewing Works of Humankind
- Automobile (includes off-road use)
- Motorcycles and Scooters
- Specialized land-craft
- Train and bus touring
- Aircraft (motorized)
- Aerial trams and lifts
- Aircraft (non-motorized)
- Hiking and Walking
- Bicycling
- Horseback riding
- Camping (all)
- Organization
- Camping (all)
- Picnicking
- Resort and Commercial services
- Resort Lodging

Land Based (includes Aircraft)

- Recreation Cabin use
- Hunting (all)
- Nature Studies (all)
- Mountain climbing
- Gathering Forest Products
- Interpretive Services (all)
- Team Sports
- Individual Sports
- Games and Play

Water Based:

- Tour Boat and Ferry
- Boat Powered
- Canoeing
- Sailing
- Other watercraft
- Swimming and waterplay
- Diving (skin and scuba)
- Waterskiing and water sports
- Fishing

Snow and Ice Based:

- Ice and Snowcraft
- Ice skating
- Sledding and Tobagganing
- Downhill skiing
- Snowplay
- X-Country skiing/snow shoeing

*These activity characteristics (from R I M FSH 2309.11) are illustrative only. Specific additions or exception of activities within a ROS class may occur depending upon local forest situations.

Table 1 (continued)

ROS Setting Characterization*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.	Area is characterized by predominantly natural-appearing environments with moderate evidences of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.	Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans, on-site, are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

*This table is for descriptive purposes only.
Use the five specific ROS class delineation criteria given in Table 2 to identify the actual areas to which these descriptions apply.

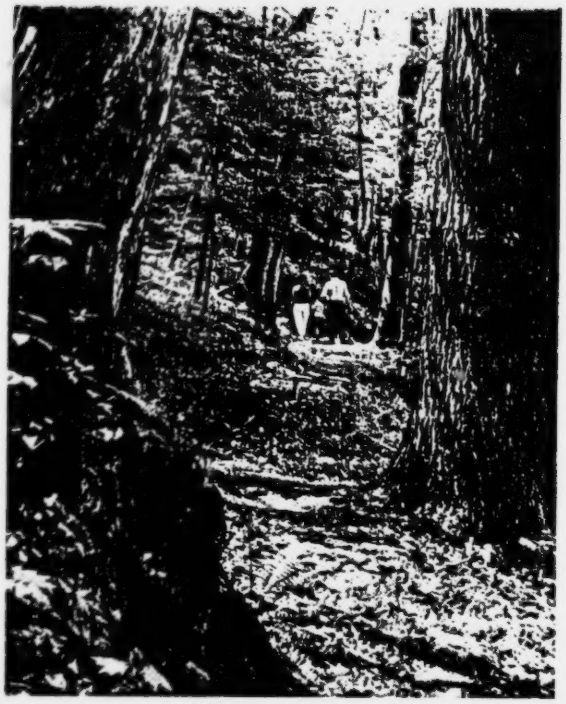


Table 1 (Continued)

ROS
Experience Characterization*

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Extremely high probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers a high degree of challenge and risk.	High, but not extremely high, probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk.	Moderate probability of experiencing isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman and outdoor skills in an environment that offers challenge and risk. Opportunity to have a high degree of interaction with the natural environment. Opportunity to use motorized equipment while in the area.	About equal probability to experience affiliation with other user groups and for isolation from sights and sound of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and non-motorized forms of recreation are possible.	Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. These factors are generally more important than the setting of the physical environment. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing, for which challenge and risk-taking are important elements.	Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Experiencing natural environments, having challenges and risks afforded by the natural environment, and the use of outdoor skills are relatively unimportant. Opportunities for competitive and spectator sports and for passive uses of highly human-influenced parks and open spaces are common.

*These experiences are highly probable outcomes of participating in recreation activities in specific recreation settings.

20.1—THE SUPPLY COMPONENT—The supply component of recreation input to Land and Resource Management Planning requires an inventory of recreation supply opportunities by Recreation Opportunity Spectrum class that are currently available as a result of existing conditions. It also requires for each alternative management prescription that a separate projection of potential supply by Recreation Opportunity Spectrum Class be developed. This information provides the basis for evaluation and determination of the management direction response to projected recreation demands.

21—ROS CLASS DELINEATION

The land and water areas of the Forest are inventoried and mapped by Recreation Opportunity Spectrum class to identify which areas are currently providing what kinds of recreation opportunities. This is done by analyzing the physical, social, and managerial setting components for each area. The characteristics of each of these three components of the setting affect the kind of experience the recreationist most probably realizes from using the area.

Table 2 shows mapping criteria which apply to each component of the setting. When conducting a Recreation Opportunity Spectrum inventory proceed through the criteria in the same sequence as that outlined in the Table. Definitions of the settings and step-by-step directions begin at Section 21.2.

Mapping the Recreation Opportunity Spectrum classes should be done on a map scale which allows an overall view of the planning area. A 1 inch = 1 mile scale is usually sufficient to provide this overview. If necessary the map information may be transferred to larger scale maps later in the data processing stage to conform with integrated data collection criteria.

Once the classes are mapped on the basis of the setting components, the activity opportunities within the classes are identified (Section 23-24), and the current capacity of the planning area to provide the opportunities is estimated (Section 25). Attractiveness by area and Recreation Opportunity Spectrum class may also be inventoried (Section 22) if relevant to the analysis of issues and concerns or other management planning needs.

Some alternative management prescriptions may require changes from the currently inventoried Recreation Opportunity Class delineation in order to meet the specified goals and objectives of the prescription. The classification changes in response to each alternative management prescription need to be specified and used to project the adjusted capacity or future supply by Recreation Opportunity Spectrum class.

Overlays should be used to document the projected changes needed in delineation or classification of the Recreation Opportunity Spectrum inventory in response to each alternative management prescription.

Table 2

Criteria Used For ROS Class Delineation

Setting Component	Mapping Criteria	Found In	Section
Physical	Remoteness	Table 3	21.21
	Size	Table 4	21.22
	Evidence of Humans	Table 5	
Social	User Density	Table 6	21.23
Managerial	Managerial Regimentation & Noticeability	Table 7	21.32 21.41

Table 3

Remoteness Criteria*					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
An area designated at least 3 miles from all roads, railroads or trails with motorized use	An area designated at least ½-mile but not further than 3 miles from all roads, railroads or trails with motorized use; can include the existence of primitive roads and trails if usually closed to motorized use.	An area designated within ½-mile of primitive roads or trails used by motor vehicles; but not closer than ½-mile from better than primitive roads.	An area designated within ½-mile from better than primitive roads, and railroads.	No distance criteria.	No distance criteria.

*The criteria can be modified to conform to natural barriers and screening, or other relevant features of local topographic relief and vegetative cover. This fits the criteria to the actual Forest landscape

Table 4

Size Criteria					
Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
5,000 acres*	2,500 acres**	2,500 acres	No size criteria.	No size criteria.	No size criteria.

*May be smaller if contiguous to Semi-Primitive Nonmotorized Class.
**May be smaller if contiguous to Primitive Class.

Table 5

Evidence of Humans Criteria

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Setting is essentially an unmodified natural environment. Evidence of humans would be unnoticed by an observer wandering through the area.	Natural* setting may have subtle modifications that would be noticed but not draw the attention of an observer wandering through the area.	Natural* setting may have moderately dominant alterations but would not draw the attention of motorized observers on trails and primitive roads within the area.	Natural* setting may have modifications which range from being easily noticed to strongly dominant to observers within the area. However from sensitive** travel routes and use areas these alterations would remain unnoticed or visually subordinate	Natural* setting is culturally modified to the point that it is dominant to the sensitive** travel route observer. May include pastoral, agricultural, intensively managed wildland resource landscapes, or utility corridors. Pedestrian or other slow moving observers are constantly within view of culturally changed landscape	Setting is strongly structure dominated. Natural or natural-appearing elements may play an important role but be visually subordinate. Pedestrian and other slow moving observers are constantly within view of artificial enclosure of spaces
Evidence of trails is acceptable, but should not exceed standard to carry expected use.	Little or no evidence of primitive roads and the motorized use of trails and primitive roads.	Strong evidence of primitive roads and the motorized use of trails and primitive roads.	There is strong evidence of designed roads and/or highways	There is strong evidence of designed roads and/or highways	There is strong evidence of designed roads and/or highways and streets
Structures are extremely rare.	Structures are rare and isolated.	Structures are rare and isolated.	Structures are generally scattered, remaining visually subordinate or unnoticed to the sensitive** travel route observer. Structures may include power lines, micro-wave installations and so on.	Structures are readily apparent and may range from scattered to small dominant clusters including power lines microwave installations local ski areas, minor resorts and recreation sites	Structures and structure complexes are dominant and may include major resorts and marinas, national and regional ski areas, towns, industrial sites, condominiums or second home developments

*In many southern and eastern forests what appears to be natural landscapes may in actuality have been strongly influenced by humans. The term natural-appearing may be more appropriate in these cases.

**Sensitivity level 1 and 2 travel routes from Visual Management System USDA Handbook 461.

Table 6

Social Setting Criteria*

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Usually less than 6 parties per day encountered on trails and less than 3 parties visible at campsite.	Usually 6 –15 parties per day encountered on trails and 6 or less visible at campsites.	Low to moderate contact frequency. **	Frequency of contact is: ** Moderate to High on roads; Low to Moderate on trails and away from roads.	Frequency of contact is: ** Moderate to High in developed sites, on roads and trails, and water surfaces. Moderate away from developed sites.	Large numbers of users onsite and in nearby areas.

*These criteria apply during the typical recreation use season. Peak days may exceed these limits.

**Specific numbers must be developed to meet regional or local conditions.

Table 7

Managerial Setting Criteria

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
On-site regimentation is low with controls* primarily off-site.	On-site regimentation and controls* present but subtle.	On-site regimentation and controls* present but subtle.	On-site regimentation and controls* are noticeable, but harmonize with the natural environment.	Regimentation and controls* obvious and numerous, largely in harmony with the man-made environment.	Regimentation and controls* obvious and numerous.

*Controls can be physical (such as barriers) or regulatory (such as permits).

United States
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Forest Service

**Pacific
Northwest
Region**

1987

Proposed Land and Resource Management Plan

Gifford Pinchot National Forest

Forest-wide Standards/Guidelines

These Forest-wide Standards/Guidelines give direction within which all practices will be carried out. They are applicable to all appropriate National Forest lands. These Standards/Guidelines supplement direction found in the Forest Service Manual and the Regional Guide for the Pacific Northwest. If a conflict occurs between these Standards/Guidelines and direction found in Management Area Categories and Prescriptions (Section IV-E), the Prescription direction will take precedence unless otherwise stated.

Due to the great variety of resources and circumstances which may be encountered, allowance must be made for situations which require exceptions. Circumstances causing exceptions may include inaccurate resource data, natural disasters, and the need to respond to other lawful activities; e.g., mineral development permitted by the mining laws. Directions where such exceptions may occur employ the term "should."

Some Standards/Guidelines require end results. For example, ". . . number of snags of a certain size to remain after harvesting," or ". . . at least 50 percent of the suitable timberland should be in mature or old-growth timber." It should be understood that, if such conditions do not exist at the time a management activity occurs, the next best, or closest possible solution, will be substituted.

Exceptions to Standards/Guidelines will be documented through the NEPA process. Significant departures from the Standards/Guidelines will require that the NEPA process be used to describe the situation, develop alternatives, and evaluate costs. Mitigation measures will be employed to produce a result as close as possible to that called for by the Standards/Guidelines.

All Standards/Guidelines are intended to apply to each geographically separate Management Area. For example, direction such as ". . . harvesting may not exceed 5 percent per decade . . ." is applicable to each Management Area to which the direction is assigned, rather than to all separate such areas collectively (MAC).

Recreation

Planning and Inventory (A01, 2)

These Standards/Guidelines are designed to protect or enhance scenic and recreational values.

1. The Visual Quality Objectives assigned in each Management Area should be the minimum level acceptable and should be met by all activities.

2. Locations where rehabilitation may be required to meet established visual quality standards should be inventoried for accomplishment in all Management Areas permitting vegetative manipulation.

3. The Recreation Opportunity Spectrum (ROS) class assigned in each Management Area (except Wilderness) is the minimum level acceptable and should be met by all activities. (Specific ROS direction is found on pages 32-40. See Wilderness Management Strategy for WROS direction.)

4. Opportunities to provide sites for wildlife viewing should be evaluated.

5. Commercial guide and packer operation opportunities should be evaluated.

6. Geological and botanical features, waterfalls, cultural sites not eligible for the National Register, and similar items should be evaluated for their recreational value. Where determined to be significant, these values should be protected. Actual boundaries and measures of protection will be determined in the Environmental Analysis for any project which may adversely affect the item.

7. Priority Trails. The following Standards/Guidelines apply to all designated Priority Trails. If direction in a particular Management Area is less restrictive, the direction here will prevail:

   a. These trails will be managed to provide for a continuity of a quality recreation experience.

   b. A foreground corridor averaging 100 feet on each side will be assigned the Retention Visual Quality Objectives as viewed from the trail.

      Logs should be pulled away from the trail. Tractors should be permitted within the corridor only if they would cause less site disturbance than cable systems. Low ground pressure equipment should be preferred if tractors are permitted.

Cable logging across the corridor, including minimum width skyline corridors, may be permitted if consistent with the recreation objectives.

c. Roads within the corridor, including those existing, should not exceed more than one per each 2-mile segment.

d. Timber harvesting, if permitted in the particular area, is subject to b. (above).

e. ORVs should not be permitted on any trail segment between a Wilderness boundary and the nearest trailhead serving that Wilderness.

10. Winter sports activities should be inventoried and coordinated on a Forest-wide basis.

The following Cultural Resource Management Standards/Guidelines will be used to ensure that the necessary planning, inventory, evaluation, assessment, and protection (or mitigation of effects) is carried out on all cultural resources.

Cultural Resource Planning

1. A cultural resource management plan will be written for each site listed on, or determined eligible for, the National Register of Historic Places, including those under special use or Granger-Thye permit.
2. A management plan should be written for the Forest cultural resource program. The plan should include recommendations for enhancement and interpretation of cultural resources, as well as recommendations for generating use fees.

Cultural Resource Inventory

1. Prior to any ground-disturbing activity, proposed project areas will be examined for cultural resources by a cultural resource specialist or technician under the direction of a specialist. Included are: (1) those projects which are permitted, but not performed by the Forest Service, and (2) Forest Service projects on other than National Forest lands. The inventory will be conducted as early as feasible in the project planning stage, and results will be documented in the Environmental Analysis for the project.
2. A cultural resource inventory will be conducted prior to the routine maintenance, rehabilitation, movement, or removal of any structure which may have cultural value. Included are those privately owned on National Forest lands under special use permits.
3. Cultural resource inventory work will be coordinated with the State Historic Preservation Officer, through the Forest Cultural Resource Specialist.
4. The Forest "Cultural Resource Overview" should be updated as needed.
5. Cultural resource inventory will be performed on the Forest by non-Forest Service personnel only after the appropriate permits have been obtained.
6. Caves, rock shelters, lava tubes, and talus slopes will be inventoried when they are within project areas or are subject to recreational use.
7. An inventory will be kept of sites identified by Native Americans under the American Indian Religious Freedom Act.

Cultural Resource Evaluation and Assessments (A03)

1. All cultural resources, including sites and structures, will be evaluated to determine eligibility for the National Register of Historic Places. If determined eligible, they will be managed as if listed on the Register. The State Historic Preservation Officer will be consulted when determining eligibility, with the Keeper of the National Register consulted as needed. Sites or structures determined to be eligible for the Register should be nominated.
2. The potential effects of proposed activities on any cultural resource will be assessed prior to any disturbances. Assessment will be performed in consultation with the State Historic Preservation Officer (SHPO) and the Federal Advisory Council on Historic Preservation.

Cultural Resource Protection and Enhancement (A04)

1. Cultural resources eligible for the National Register will be protected from potential effects of project activities or their historic values conserved through appropriate mitigation.
2. Cultural resources eligible for the Register will be protected from depredation due to public use and natural deterioration.
3. Measures to avoid or mitigate project effects and to protect cultural sites and structures will be developed in consultation with the State Historic Preservation Officer and the Federal Advisory Council on Historic Preservation.
4. Historic buildings not in use should be considered for special use permits or Granger-Thye permits.
5. Suitable cultural resources should be developed and interpreted for recreational use when adequate provisions are available to protect the resource.
6. Information gathered in the evaluation of sites and structures should be used in the

Forest interpretation program. Displays, brochures, interpretive trails, or signing may be employed.

7. Specific cultural resource site locations are exempt from disclosure to the general public.

8. All cultural resource excavations by non-Forest Service personnel will require a permit.

9. Rights and privileges provided by the Medicine Creek Treaty of 1854 for the Nisqually Indians and the Yakima Treaty of 1855 for the Yakima Indian Nation will be reserved for those groups.

10. Traditional food and plant material gathering sites used by Native Americans may be managed for continued production of native roots, berries, nuts, herbs, and other plant materials typically gathered from the land.

11. Religious sites and resources identified under the American Indian Religious Freedom Act will be managed in consultation with Native Americans.

Facility Reconstruction and Construction (A05, 6)

Recreation facilities should be designed to accommodate the handicapped wherever practicable.

Facility and Site Management (A07)

Industrial operations should not infringe upon public use of established recreation sites or the roads which access the sites. Infringements include such things as competing for campsites or piling culverts or other materials on sites or along roads. This direction is not intended to preclude any needed contract work.

Use Administration (A08)

1. Unless otherwise noted, off-road vehicle (ORV) direction found in the Strategies does not apply to over-snow machines. Snow machines are generally acceptable on the Forest where adequate snow protects soil and vegetative resources. Designated areas such as cross-country ski areas may be closed to snowmobiles.

2. Routes or areas may be designated for exclusive use of snowmobiles, wheeled snow machines, or cross-country skiing.

3. "The Forest Travel Plan" will provide information on where public travel, including the use of ORVs, is permitted or limited. The Travel Plan should be reviewed annually and revised, if necessary, to meet Forest Plan objectives.

Developed Recreation

MANAGEMENT AREA CATEGORY-2

Includes Management Prescriptions-
2L and 2U

Goal

Readily accessible, appropriately designed facilities will provide for concentrated visitation by people seeking a convenient recreational experience.

Description of Lands Where This Mac is Applied

Developed recreation sites are usually close to water bodies, berryfields, and other areas of scenic or special interest. Except for winter recreation areas, they are usually located on relatively flat land with slopes of less than 10 percent. Soils and vegetation must be able to absorb heavy use. Camp and picnic grounds, ski areas, recreation residences, viewpoints, boat launches, and other facilities may be accommodated.

Desired Future Condition

Roads, buildings, ski lifts, tables, docks, and other physical facilities are evident, but design and construction will repeat the color, shapes and lines of the surroundings.

Openings usually exist only to accommodate facilities and provide scenic views; trees and other vegetation will vary widely in type and size.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-2, unless otherwise indicated.

RECREATION

Planning and Inventory (A01, 2)

1. The location of unusual geologic forms, cultural features, wildlife and scenic viewing opportunities, and other points of interest should be evaluated for interpretation and development.

2. In selected sites, special facilities needed for the convenience of visitors, including the elderly, young, and handicapped, should be provided.

3. The Visual Quality Objective and Recreation Opportunity Spectrum classes assigned to these Management Areas are:

   Management Prescription-2L
      VQO-Retention
      ROS-Roaded Natural
   Management Prescription-2U
      VQO-Retention
      ROS-Rural

Facility and Site Reconstruction, Construction and Management Administration (A05, 6, 7)

1. Site development and management should be guided by these priorities:

   a. Public safety and sanitation.

   b. Long-term protection of site and facilities.

   c. Accommodation for groups and for the handicapped.

   d. Information services.

2. Operation and maintenance plans should be prepared.

3. New camp units should be located away from the immediate foreground of lakes and streams. Those which are now in these locations should be moved whenever practicable.

4. Every site will be surveyed for hazard trees annually. Trees determined to be dangerous will be removed.

Use Administration (A08)

Off-road vehicles should be limited to ingress and egress.

TIMBER

Planning and Inventory and Intermediate Harvest (E00, 2)

1. Timber harvest will not be scheduled.

2. Trees should be removed when they may be a hazard to life or property. Methods least likely to produce lasting visual impacts should be employed.

3. Trees may be removed to improve a ski area, provide a scenic view, or accomplish other recreational enhancements.

Silvicultural Examination and Prescriptions (E03)

As a basis for the Vegetative Management Plan, a silvicultural examination should be prepared for every Developed Recreation site. It should take into account crown closure, hazard trees, and the ability of the stand to withstand concentrated recreation.

Timber Sale Preparation and Harvest Administration (E06, 7)

1. Firewood cutting should not be permitted unless a blowdown or other unusual circumstance makes that a practical option for clearing the area.
2. In the foreground of areas adjacent to concentrated use:
    a. Remove portions of downed trees which are greater than 24 inches in diameter.
    b. Flush-cut or remove stumps.
    c. Remove logs and debris by methods which minimize ground and vegetative disturbance.

Genetic Forest Tree Improvement Program (E09)

Genetic improvement program activities should be limited to select trees. Identification marks should be inconspicuous.

WATER, SOIL, AND AIR

Inventory, Planning and Improvement (F01, 2, 3)

Adverse impacts of recreation on soil, water, and air should be identified. Those which may jeopardize public health and safety will be corrected immediately. Others should be treated before the opening of the next season.

Rights/Use Management (F07)

Water rights should be acquired for all sources supplying or expected to supply domestic water to the recreation site.

MINERALS AND GEOLOGY

Inventory and Evaluation, Site Specific Technical Investigations and Development Proposals (G01, 2, 5)

1. Common mineral material sources should not be developed.
2. Potential acquifers should be evaluated prior to well location and drilling.

LANDS

Special Use Management (Nonrecreation) and Right-of-Way Grants for Roads and Trails (J01, 2)

Only those permits, leases, rights-of-way, and other special uses which are compatible with Developed Recreation should be permitted.

Federal Energy Regulatory Commission License and Permits (J03)

Feasibility studies may occur providing they are performed in a manner which does not impair recreational use of the area.

Withdrawals, Modifications and Revocations (J04)

The recreation site or area should be withdrawn from mineral entry.

Landownership Planning (J11)

All lands should be placed in Landownership Category II, acquire or retain.

FACILITIES

Transportation Planning and Inventory, Arterial/Collector/Local Road Preconstruction and FA&O, Road Construction and Reconstruction (L01, 2, 6, 10, 24)

Roads and other facilities inconsistent with Developed Recreation should be located away from the primary use areas, closed, or removed.

Road Operation (L19)

Access roads to developed sites should be managed to permit passenger car traffic.

When vandalism is a problem, the Prohibit traffic scheme can be applied to seasonally close sites. When vandalism is not a problem, road use may be seasonally discouraged by posting closure signs.

PROTECTION

Fire Management Planning and Analysis and Prevention (P01, 2)

Fire Suppression Strategy C, control, should be used at all developed sites.

Fire Hazard Reduction Priorities, utilize and dispose, should apply.

Pest Suppression and Prevention (P35, 39)

Pest suppression and prevention methods should be used for maintaining the health of vegetation. Timing of this activity should avoid the recreation season if possible.

Road Operation (L19)

Local roads providing access to recreation sites should be managed to accept passenger car use provided the old-growth character is maintained.

All local roads not required for through traffic or for a specific recreation objective should be closed using the Eliminate or Prohibit traffic schemes.

Unwanted vegetation along the travel routes or use areas should be controlled in a visually inconspicuous manner, primarily by hand or machine methods. Any use of chemicals should be timed to avoid vegetative brownout.

PROTECTION

Initial Attack and Escaped Fire Suppression (P08, 9)

1. In periods of low fire hazard, Fire Suppression Strategy A (confine), should be used. During the fire season, Stategy C (control), should apply.

2. Fire Hazard Reduction Applications rearrangement or removal, should be used. Rearrangement, removal, or disposal fuel treatment applications should be employed along travel routes and in or adjacent to special features. The area should utilize the fuel treatment application which best meets the natural condition of the area.

Pest Suppression and Prevention (P35, 39)

Pest suppression and prevention methods which minimize visual disturbance should be employed. Biological and silvicultural treatment methods should be preferred. Hazard trees near use areas should be removed.

United States
Department of
Agriculture

Forest Service

**Pacific
Northwest
Region**

1986

Proposed Land and Resource Management Plan

Wenatchee National Forest

Cultural Resources Evaluation and Assessment

1. Evaluate the significance of inventoried sites by applying the criteria for eligibility to the National Register of Historic places. Sites may be treated as individual properties, thematic groups, or historic districts. Efforts should be made to look at the local or regional context of the cultural resource and to determine the relationship of the property to others within the same historic context and/or specified geographic area. Give priority to those properties that may be affected by project activities. Develop a plan to evaluate all other cultural resources through cost effective means as the Forest-wide inventory nears completion.

2. Nominate cultural resources that meet the appropriate criteria for eligibility to the National Register of Historic Places. Nominations will be scheduled incidentally until completion of the Forest-wide inventory of cultural resources.

3. Consider the effects of all Forest Service undertakings on significant cultural resources, and assure the development of measures to avoid or mitigate any adverse effects.

4. Complete and maintain a cultural resource overview of the Forest. The overview should summarize all previously recorded cultural resource information for the Forest; provide a framework for evaluating cultural resources identified through the inventory process; develop a preliminary research design to guide future surveys, inventories, and scientific investigations; and identify opportunities for interpretation of a range of cultural properties.

5. Conduct cultural resource inventories (survey and site recordation) according to strategies and consultation procedures established on the Forest. Emphasis will be given to all areas where ground disturbing activities are planned, to ensure discovery of all reasonably locatable cultural resources. These inventories should be supervised by a cultural resource professional.
There are also substantial inventory needs on those Forest acres (such as wilderness) that are not affected by anticipated project activities. Priorities for non-project related inventory will be:

> A. Areas experiencing degradation through natural processes or intensive public use.
>
> B. Areas of reported but unverified sites.
>
> C. Areas where cultural resources are highly probable as determined by known land use patterns, terrain features, resource distributions, and the nature and extent of previous landscape modifications.

6. Develop management plans, in consultation with the Washington State Historic Preservation Office (SHPO), for all sites listed in the National Register of Historic Places. These plans should specify measures to protect and maintain the cultural integrity of the sites, objectives for management of the visual setting, levels and types of other resource uses compatible with the historic values of the sites, an interpretive design if so desired, and a program to carry out the objectives of the plan. Adaptive or compatible modern uses of historic properties, such as use as Forest Service administrative facilities or under special use permit with protective stipulations, should be encouraged.

Cultural Resource Protection and Enhancement

1. Develop measures, in consultation with the Washington State Historic Preservation Office (SHPO) and, if necessary, the Advisory Council on Historic Preservation (ACHP), to protect significant sites from adverse effects due to project activities. These measures may range from complete avoidance of the site and corresponding protection of its environmental setting, to mitigation procedures which conserve the historic values of the resources. American Indian religious values are also important elements to be considered when addressing decisions as to site preservation, protection, or alteration/removal. Among alternatives to consider are:

> A. Adjustment of project boundaries to ensure complete avoidance of the site as well as protection of its environmental setting, where necessary.

B. Adoption of methods or techniques that will minimize disturbance to the site and its environmental setting.

C. Meeting "The Secretary of the Interior's Standards for Historic Preservation Projects" for projects involving historic structures.

D. Removal of the cultural property (historic) to another appropriate location after documentation of the property inplace.

E. Mapping, photodocumentation and scaled drawings of historic properties before proceeding with project implementation.

F. Excavation of archaeological sites utilizing a professionally sound research design in keeping with the State-wide research plan, and carried out in consultation with interested Native American groups. Such excavation would be undertaken through contract.

2. Protect eligible cultural resources from depredation due to public use and natural deterioration. Protection plans may include, but are not limited to, scientific study and collection, the use of fences and barriers, proper use or removal of signs, stabilization techniques, closure orders, patrol and site monitoring, maintaining site anonymity, and gaining public understanding and support through education.

3. Buildings listed on the National Register of Historic Places or buildings eligible for listing, will be maintained to the maximum extent practical.

4. Provide opportunities for scholarly/scientific use of designated prehistoric and historic sites. This may require "banking" of sites for future use, coordination with American Indian groups, and processing of antiquities permits for testing and excavation of sites by qualified professionals.

5. Apply the SI-2 prescription to future cultural properties based on National Register eligibility, scientific values, and/or American Indian concerns.
6. Interpret suitable cultural resource properties for the recreational use and educational benefit of the general public. The measure of suitability should be based on accessibility to the public, feasibility for protection, condition of the property, compatibility with other resource management activities within or adjacent to the area, thematic representation, and value to public groups. Interpretive services and facilities should be compatible with the nature, quality, and integrity of the cultural sites selected for enhancement. Preferred methods include brochures, signs, and self-guided tours. Handicapped access to interpreted sites should be provided wherever practicable. Coordination with the American Indian community and involvement of interested volunteer groups and appropriate educational institutions will be encouraged.

Visitor Use Administration

1. Information programs such as recreation reports, news releases, radio and television reporting, video productions, and information tours will continue to be emphasized as means to keep the public informed of management activities.

2. Contacts with the public will anticipate management problems. Contacts will be based on high quality public service and positive effective communication. Contacts will seek to improve user land use ethics, encourage "light on the land" use techniques, and minimize conflicts.

3. Regulations to restrict or limit use will be employed only after all reasonable means have been exhausted to resolve conflicts between users and user groups.

4. Regulations and restrictions on Forest visitors will be well coordinated between Districts and adjacent Forests to avoid unnecessary contradiction or needless public confusion. However, logical deviation and flexibility will be maintained in user administration.

5. Incorporate interpretive and outdoor environmental education programs into activities available at appropriate developed sites.

Trail Reconstruction

1. Trail reconstruction will be accomplished in accordance with established objectives for each trail.

2. Meet visual management objectives and applicable ROS Class criteria in reconstruction design to assure appropriate recreation experience of the trail.

Trail Construction

1. Construct new trails to meet specific recreation management objectives, provide additional opportunities, solve user conflicts, and meet public demand where development of new trails is compatible with other land uses.

2. Newly constructed trails will meet visual management objectives and applicable ROS Class criteria for the areas accessed by the trails.

3. Design trails to provide a variety of recreation experiences as well as to access destinations or complete loop opportunities.

4. Plan the development and location of winter trails for snowmobile, cross-country skiing, snowshoeing, dog sledding, etc., to coordinate with other resource values, management activities, and various management prescription criteria.

Trail System Maintenance and Operation

1. The Forest trail system will provide for use by all specified modes of transportation as contained in the management prescriptions.

2. Trail closures will be made only where needed to minimize disturbance to wildlife; prevent user conflicts; to protect soil, water, visual, vegetative, and cultural resources; control heavy use or to meet legislative requirements; and provide for public safety.

3. Trail maintenance will be performed to a standard or level that is compatible with established trail objectives for that trail and in conformity with ROS Class criteria.

4. Winter trails will receive protective mitigation considerations equal to the Forest Trail System.

5. In trail system planning and inventory, establish objectives for each system trail identifying purpose, intent, or role of the trail, opportunities provided by the trail, use levels, and public expectations of the trail. Use trail objectives as a guide in construction or reconstruction planning and in establishment of maintenance levels.

Nonstructural Habitat Improvement

1. Implement cost effective habitat improvement projects that are needed to meet the Forest-wide and prescription directions.

2. Provide an economic analysis of each project.

3. Design the habitat improvements to help meet objectives of other resources, when practical.
4. Look for opportunities to share costs of habitat improvements with the Washington Department of Wildlife, other agencies, and private groups.

5. Improve forage quality and quantity in summer range, outside prescriptions for big game (EW-1 and EW-3), when it is a limiting factor, and consistent with other resource objectives.

6. Strive to provide an abundance of herbaceous vegetation with a high nutrient content in the spring and fall range of big game.

7. For mountain goats create or maintain small openings of 0.5 to 5 acres of high quality forage in both summer and winter range.

8. Update the 10 year schedule for wildlife and plant improvement projects annually.

Structural Habitat Improvement

1. Implement cost effective habitat improvement projects that are needed to meet the prescription direction.

2. Provide an economic analysis of each project.

3. Design the habitat improvements to help meet the objectives of other resources, when practical.

4. Look for opportunities to share costs of habitat improvements with the Washington Department of Wildlife, other agencies, and private groups.

5. Develop watering facilities, for use by a variety of wildlife, where increases in wildlife are expected.

6. Increase primary cavity excavator habitat in prescriptions that are below the potential population objective as soon as possible.

7. Update the plan for wildlife and plant improvement projects annually.

8. Increase fish habitat capability and watershed condition through implementation of rehabilitation and enhancement projects utilizing a variety of funding sources, including but not limited to, FRP, P&M, KV, and BPA funds. Coordinate with State and Federal Fish agencies, Treaty Indian Tribes, private groups, and the Northwest Power Planning Council's Fish and Wildlife Program.

WATER

Planning

1. Program Implementation - Develop and annually update a Water Resource Five-Year Program that identifies support services, inventory needs, improvement targets, and monitoring direction by Unit and subdrainage. Coordinate the development and revision of the Program with other resource elements, Forests, and State and Federal agencies.

Improvement

1. Refer to the "Improvement" section under the soil resource for direction regarding the Watershed Improvement Program.

Administration and Management

1. Protection of Water Quality - Comply with State requirements for protection of waters of the State of Washington (Washington Administrative Code, Chapters 173-201 and 202) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with the Clean Water Act, regulations, and federal guidance issued thereto.

In cooperation with the State of Washington, the Forest will use the following process:

A. Select and design BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards for those waters potentially impacted.

B. Implement and enforce BMPs.

C. Monitor to determine if practices are correctly applied as designed.

D. Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards.

E. Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected.

F. Adjust BMP design standards and application when it is found that beneficial uses are not being protected and water quality standards are not being achieved to the desired level. Evaluate assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

Use the existing agreed to process to implement the State Water Quality Management Plan on lands administered by the USFS as described in Memorandum of Understanding between the Washington Department of Ecology and U.S. Department of Agriculture Forest Service (7/79), and "Attachment A" referred to in this MOU (Implementation Plan for Water Quality Planning on National Forest lands in the Pacific Northwest 12/78).

For a more complete explanation of the above, refer to Appendix J in the FEIS, "Best Management Practices".

Individual, general Best Management Practices are described in the General Water Quality Best Management Practices, Pacific Northwest Region, 11/88. this document provides guidance but not direction. Also included in this document is a description of the process, and limitations and use of these BMPs. Each BMP listed includes the Title, Objectives, and Monitoring. Evaluations of ability to implement and estimated effectiveness are made at the project level.

Normally, not all of the general BMPs listed will apply to any given projects. There may be specific BMPs which are not represented by a general BMP in this document.

The sensitivity of the project determines whether the site-specific BMP prescriptions are included in the EA/EIS or in the sale/project plan, or in the analysis files.

2. Floodplains and Wetlands - Complete a floodplains and wetlands analysis for any project that has the potential to impact these sensitive areas. This analysis and all management activities within these areas will comply with the objectives of Executive Orders #11988 (Floodplains) and #11990 (Wetlands).

3. Management of Monitoring Sites - Monitoring sites established by the Forest Service or other agencies for the purposes of baseline or project monitoring will be managed so as not to impair the value of the site for data collection during its projected life span. For example, cooperative snow course sites must be protected as required by the current Memorandum of Agreement with the Soil Conservation Service. Other examples of monitoring sites that require protection include precipitation gages, stream gages (U.S.D.I-Geological Survey), riparian exclosures, riparian or stream channel transect sites, and baseline stream network sites, control watersheds, etc.

4. Water Resource Investigations - Evaluate the potential direct, indirect and cumulative effects of proposed activities on water resources. Refer to the standards and guidelines for the soil resources for direction regarding cumulative effects analysis.

Design and conduct water resource inventories to support project analyses at a level commensurate with the planning issues. Develope a water resource inventory program, in cooperation with other resources to: (a) provide more specific information for area and project level analysis and planning, (b) improve the Forest data base for use in Plan revisions and (c) revise current inventories to a higher standard.

5. Monitoring - Develop and annually update a Forest-wide Soil, Water and Fish Habitat Monitoring Plan designed to provide more specific direction in response to the monitoring strategy outlined in Chapter V of the Forest Plan. Coordinate this monitoring program with other resources, Forests, other Federal and State agencies, Indian Tribes and public groups.

Develop and implement a feedback loop process that addresses both short-term (e.g., immediate alteration of an on-going project) and long-term (e.g., riparian trend analysis) use of monitoring results in assuring protection of beneficial uses.

Annually complete a monitoring results summary for internal and external distribution. Annually input Forest water quality data into the STORET system.

Rights and Use Management

1. National Forest Uses - Secure necessary water rights to accomplish the multiple-use objectives of the USDA-Forest Service as described by Federal law. For consumptive water uses: (1) Secure Federal reserved water rights pursuant to the Reservation Doctrine and other enabling legislation or Executive Orders. (b) Acquisition of non-reserved water rights will be made pursuant to applicable State law.

For non-consumptive uses: (a) Assert federal Reserved water rights for timber and watershed management, including instream flows sufficient to maintain stability of the stream channel for the purposes of securing favorable conditions of water flow and protecting against adverse impacts to productive timber lands adjacent to the channel, pursuant to authority contained in the Organic Administration Act of 1897. (b) Assert water rights for other resource programs by securing instream flows pursuant to authorities contained in other applicable Federal law.

2. Protection of Water Uses - Review water right claims and applications that involve development on or near National Forest System lands in order to determine compatibility with multiple-use objectives. Environmental analysis will be conducted by either the Forest or applicant to evaluate proposed water uses, diversions, transmission applications and renewal of permits on Forest.

Protection of water uses will be achieved through the following means: (a) filing protests with the State in cases where applications are made that adversely effect National Forest resources, (b) asserting claims under applicable Federal or State laws, (c) inserting protection measures into special use permits, (d) developing formal agreements over water use, or (e) purchasing needed water rights where sufficient water cannot be obtained under the Reservation or Appropriative Doctrines,

Permits will not be issued for occupancy of National Forest System lands if that occupancy would conflict with Reserved rights or interfere with meeting other resource objectives as identified in this Plan.

SOIL

Planning

1. Program Implementation - Develop and annually update a Soil Resource Five-Year Program that identifies support services, inventory needs, improvement targets, and monitoring direction by Unit and Subdrainage. Coordinate the development and revision of the Program with other resource elements, Forests, and State and Federal agencies.

Improvement

1. Inventory - Utilize the Forest Watershed Improvement Needs (WIN) Inventory for the identification and prioritization compatible with Regional guidelines.

2. Scheduling - Eliminate backlog of watershed improvement needs on a priority basis as directed by the Soil and Water Five-Year Programs. Acres involving potential threats to life and property will receive the highest priority for treatment, followed by projects in public supply watersheds and drainages that are used by anadromous fish. Calculate target accomplishment on a treated acre basis.

3. Maintenance - Provide maintenance to assure that watershed improvement projects are functional until objectives of the projects are met and to protect capital investments.

4. Monitoring - Watershed improvement projects and project maintenance will be monitored on a annual basis in order to evaluate project and program effectiveness.

Administration and Management

1. Cumulative Effects Analysis - In sub-basins where project scoping identifies cumulative effects to be an issue or concern, a detailed watershed analysis will be made by an appropriate group of specialists. Their job will be to determine current watershed conditions and evaluate probable impacts for additional management activities. These studies will include all lands regardless of ownership.

Furthermore, a detailed watershed analysis will always be conducted when more than forty percent (40%) of the forested area in a 1,000 acre or larger subdrainage is projected to be in openings at one time (opening being defined as: the condition when the regeneration crop is less than fifteen feet tall).

2. Compaction, Displacement, Puddling, Severely Burned - Leave a minimum of 80 percent of an activity area in a condition of acceptable productivity potential for trees and other managed vegetation following land management activities. Surface soil conditions known to result in reduced productivity or loss of productive land surface are: detrimental compaction; detrimental displacement; detrimental Puddling; and severely burned. The total acreage of all detrimental soil condi-

tions should not exceed 20 percent of the total acreage within the activity area, including landings and system roads. (see when and where these conditions occur).

3. Soil Erosion - refers to both surface erosion and soil mass wasting.

A. Surface Erosion - to meet acceptable levels of soil loss and soil management objectives, the minimum percent effective ground cover following cessation of any soil-disturbing activity should be:

EROSION HAZARD CLASS	MINIMUM PERCENT EFFEC. GROUND COVER	
	1st Year	2nd Year
Low (very slight-slight)	20-30	30-40
Medium (moderate)	30-45	40-60
High (severe)	45-60	60-75
Very High (very severe)	60-75	75-90

(NOTE: see glossary for definition of effective ground cover).

B. Soil Mass Wasting - evaluations of each occurance will be made to determine the amount of sediment produced. Individual sub-drainages affected will be added to the monitoring plan.

4. Monitoring - Refer to the monitoring section in the Forest-wide Standards and Guidelines for the water resource for direction regarding soil and water monitoring.

5. There will be no scheduled timber harvest on stability Class V soils. These lands are unsuitable for timber management.

6. Soil and foliar testing (both pre and post application) should be done for all fertilization projects. This information will be used to determine the site specific application rates needed, and also to determine how long the fertilizer will last in different soils.

7. Closed roads, temporary roads, and landings should be placed in conditions to minimize soil erosion.

8. Surface water will be controlled on all roads, landings, rock pits, parking areas, and other road related facilities.

9. Where the above standards for soil erosion cannot be met because of specific site conditions, appropriate mitigation measures shall be developed in the project environmental analysis, documented in the project record, and implemented prior to fall rains.

AIR

1. Maintain air quality at a level that is adequate for the protection and use of Forest resources produced on the Wenatchee National Forest, and meets or exceeds applicable Federal and State standards and regulations.

2. Protect Air Quality Related Values within all Class 1 areas.

3. Prescribed burning will be managed to comply with the State Smoke Management Plan administered by the Department of Natural Resources, the State Implementation Plan (SIP) developed and administered by the Department of Ecology, and the Final Environmental Impact Statement for the Pacific Northwest Regional Guide dated May 1984.

4. To meet Regional Standards and Guidelines, the Wenatchee National Forest will demonstrate reasonable progress in reducing total suspended particulates (TSP) from prescribed burning during Forest Plan implementation. The starting point for the Forest is 49,000 tons.

5. Prescribed fires that exceed applicable air quality regulatory standards will receive appropriate suppression action to minimize the impact to air quality.

MINERALS

14. Recreation panning, sluicing, dredging and rockhounding shall be allowed throughout the

Forest where such activity does not conflict with established management objectives, withdrawal objectives or the rights of mining claimants. If warranted, management plans providing specific direction on how and where these activities can occur shall be implemented.

PROTECTION

Law Enforcement

1. Maintain cooperative law enforcement agreements with Chelan, Kittitas, and Yakima Counties.

MANAGEMENT PRESCRIPTION: **RE-1**

TITLE: **Developed Recreation**

GOAL STATEMENT: Provide developed recreation in an Urban to Semi-Primitive Recreation Opportunity Spectrum (ROS) setting.

DESCRIPTION: This prescription is applicable to existing and potential developed recreation sites within the full spectrum of ROS settings. The areas allocated to this use include only the specific site on which development takes place. This prescription is also applicable to existing and potential Alpine (downhill) ski areas including runs, tows or lift facilities, shelters, lodges, services and parking lots. Associated developments such as skating rinks, toboggan runs, etc., may also be present. Potential sites allocated to this prescription will be managed to protect or enhance the future values and conditions desired.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
RECREATION	Recreation Planning and Inventory	1. Visual Quality Objective: Retention 2. Plan recreation activities and facilities to provide a diverse range of recreation opportunities in ROS classes, semi-primitive to urban. 3. Develop partnerships and encourage recreation development through permits, joint ventures, and cooperative agreements. 4. Encourage development of recreation opportunities by the private providers. 5. Employ marketing strategies to determine wants and needs of recreation visitors. Incorporate these wishes in recreation planning and development.	1. A visual analysis is required to blend activities with the naturally established landscape. 2. Vegetative management plans are required prior to manipulation of vegetation. 3. Consistent with safety, retain the vegetative character of the area. 4. Manmade structures are to be architecturally compatible with the established landscape. 5. Sites may be modified to accommodate recreational facilities and uses. 6. Buildings should present naturally harmonious colors. 7. Trails will be located to take advantage of viewing opportunities. 8. Rehabilitation measures are to be applied to landscape where needed to improve the visual setting.
	Cultural Resource Evaluation, Assessment and Protection	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Facility and Site Reconstruction and Construction	1. Provide high quality recreation sites and facilities with development of activities and opportunities desired by the recreating public. 2. Reconstruct all moderate to heavily used sites with high quality facilities. 3. Construct new recreation sites where demand is high and overuse problems are occurring at existing sites.	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
RECREATION (continued)	Facility and Site Management	1. Manage all recreation sites to provide high quality facilities and recreation opportunities 2. Charge user fees in all facilities that can meet fee site requirements. 3. Provide interpretive facilities and programs in high use developed sites and where opportunities for public education are optimal.	
	Use Administration	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Trail Reconstruction and Construction	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Trail System Maintenance and Operation	1. Forest-wide Standards and Guidelines apply. See p. IV-	
WILDERNESS	Not Applicable to this Prescription.		
WILDLIFE AND FISH	Wildlife Surveys and Plans	1. Due to the hazard that wildlife trees present to recreation users, manage for maintenance of wildlife trees only if safety of recreation users can be maintained.	
	Non-Structural and Structural Habitat Improvement	1. Forest-wide Standards and Guidelines apply. See p. IV-	
RANGE	Not Applicable to this Prescription		
TIMBER	Regeneration Harvest	1. No scheduled harvest. Regeneration harvest may be needed to convert areas from thin bark or shallow rooted species to those more tolerant to disturbance, recreation use,and disease, or to perpetuate a desired forest type.	
	Intermediate Harvest	1. No scheduled harvest. Improvement cutting and salvage harvesting compatible with the prescription goal may be used. Improvement cutting will be in accordance with the vegetative management plan for the site.	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
TIMBER (continued)	Silvicultural Examination and Prescription	1. Silvicultural examination and prescription will be the biological basis for the vegetation management plan.	
	Reforestation	1. All activities will be in accordance with the vegetative management plan.	
	Timber Stand Improvement	1. All activities will be in accordance with the vegetative management plan.	
	Timber Sale Preparation, and Timber Harvest Administration	1. All activities will be compatible with area objectives.	
	Nursery Management and Genetic Tree Improvement	1. Forest-wide Standards and Guidelines apply. See p. IV-	
WATER	Inventory	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Planning	1. Existing and/or proposed trail construction, maintenance, and use shall be designed to protect water resources.	
	Improvement	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Administration and Management	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Rights and Use Management	1. Forest-wide Standards and Guidelines apply. See p. IV-	
SOIL	Inventory	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Planning	1. Conduct an on-site soil investigation on all recreation sites being considered for development. 2. Existing and/or proposed trail construction, maintenance, and use shall be designed to protect soil resources. 3. Use soil information when locating and designing trails.	
	Improvement	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Administration and Management	1. Forest-wide Standards and Guidelines apply. See p. IV-	

RE-1

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
AIR	Planning	1. Forest-wide Standards and guidelines apply. See p. IV-	
	Administration and Management	1. Forest-wide Standards and Guidelines apply. See p. IV-	
MINERALS AND GEOLOGY	Locatable Minerals	1. If existing laws and regulations do not provide adequate protection for the facilities and activities from mineral entry and the effects of mining, and recreation development is the highest and best use for the area, the area should be proposed for withdrawal.	
	Leasable Energy Minerals	1. If off-site mineral development is technically reasonable and is compatable with the recreation development objectives, recommend that a no-surface occupancy stipulation be attached to leases. If off-site development is not technically reasonable and on-site activity would be totally incompatible with the recreation development, recommend that a mineral lease not be issued.	
	Common Variety Minerals	1. If removal of these minerals can be done in a manner which is compatible with the developed recreation facility, allow disposal.	
	Recreational Mineral Activities	1. Forest-wide Standards and Guidelines apply. See p. IV-	
RURAL COMMUNITY AND HUMAN RESOURCES	Not Applicable to this Prescription.		
LANDS	Special Use Management	1. Avoid locating transportation and utility corridors in these areas.	
	Right-of-Way Grants for Roads and Trails	1. Provide appropriate access to inholders under then existing guidelines.	
	Federal Energy Regulatory Commission License and Permits	1. Recommend only compatible uses.	
	Withdrawals, Modifications, and Revocations	1. Use withdrawals only where necessary to protect on-site values.	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
LANDS (continued)	Property Line Location Property Boundary and Corner Maintenance	1. Aggressively survey, mark and post National Forest property lines and maintain to a high level.	
	Landownership Planning, Land Adjustment Planning, and All Adjustment Activities	1. Make adjustments that best serve the public need in developed recreation areas.	
	Rights-of-Way Cost-Share Agreements	1. Where these areas fall within cost share agreement areas, use cost share system as a tool to coordinate Forest Service and cooperator needs and minimize impacts on the goals.	
FACILITIES	Road Construction	1. Provide and manage roads that are compatible with the development levei.	1. Roads must conform to the terrain whenever possible, with a minimum of cuts and fills. 2. Design roads to accomodate the number and type of recreation vehicles appropriate to the recreation opportunity spectrum and development level. 3. Each campground unit must be served by aparking spot or spur that allows for safeand convenient parking off the main campground road. The last 25 feet of each parking spur should be level and as near to the natural ground as possible. 4. Install facilities for boat mooring when facilities are accessible by boat. Boat moorings may consist of docks, piers, jetties, or tieups located on the lake or along the shore.
	Road Operation	1. Encourage use, except provide a gate so that use may be eliminated or prohibited when necessary.	1. Control dust as appropriate.
	FA&O Construction and Reconstruction	1. Forest-wide Standards and guidelines apply. See p. IV-	
PROTECTION	Fire Prevention	1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.	
	Fire Suppression	1. Implement fire suppression strategies that emphasize the protection of recreation facilities and values. 2. Fire suppression tactics should emphasize the protection of life and property. The use of all fire suppression resources is appropriate.	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
PROTECTION (continued)	Fire Hazard Abatement	1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the recreation management objectives of the area. 2. The protection of recreation values will be emphasized.	
	Preattack Facilities Development	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Law Enforcement	1. Forest-wide Standards and Guidelines apply. See p. IV-	
	Forest Pest Management	1. Suppress insect and disease outbreaks with a minimum of resource disturbance to protect developments and/or users. Favor biological and silvicultural treatments over pesticides when possible. 2. Utilize high intensity preventive efforts featuring Integrated Pest Management.	

APPENDIX F

WHITE PASS SKI AREA BOUNDARY MANAGEMENT GUIDELINES

A. Goal

To reduce exposure by members of the public to avalanche hazard adjacent to the White Pass ski area while providing a reasonable degree of opportunity for a backcountry experience.

B. Objectives

The boundary management section of the Winter Operation Plan will:

1. Be coordinated with law enforcement officials.
2. Include awareness and education opportunities for individuals leaving the developed ski area.
3. Have consistent, easily understood gate systems, where authorized, and signing. Authorization and designation of gates will be done by the Forest Service at appropriate locations on the boundaries of the developed ski area.
4. Provide accesss to the backcountry consistent with these guidelines unless unique circumstances make it unwise in the estimation of the Forest Service.

C. Guidelines:

Responsibilities and Application

The ski area permittee has primary responsibilities for public safety, within the ski area boundary. The ski area operator has no duty from the status as a ski area operator to any skier skiing beyond properly marked ski area boundaries. The Forest Service has the same responsibilities for the public within the undeveloped portions of the permit area as it has for the public within National Forest land outside the permit boundary.

The Winter Operation Plan will have a boundary management section for the ski area. The boundary management section will address aspects of the ski area boundary and how it will be signed and managed.

The boundary management section of the Winter Operation Plan shall include, or make reference to, an area map on a large enough scale to clearly show:

- The ski area boundary.
- The ski area permit boundary.
- Permanently closed areas within and adjacent to the ski area boundary.
- Any designated access routes/gates that provide ingress and egress from the ski area boundary.

2. Coordination with Local Law Enforcement Agencies

The boundary management section of the Winter Operation Plan will be provided to the county sheriff for comment and coordination. In addition, the local search and rescue organizations should have an opportunity to comment on coordination regarding search or rescue in the backcountry. Approval of the Winter Operation Plan, including this section, remains with the ski area permittee and U. S. Forest Service. This coordination will be accomplished by the Forest Service.

3. Education and Awareness

The boundary management section of the Winter Operation Plan will include any guidelines for the ski area's safety program. These can include:

a. The instructions for accessing the backcountry where appropriate and the map will show the Forest Service designated gates to be used, if any.

b. The signs to be used, if any.

c. The reasons why restrictions are needed.

This section will also define additional informational opportunities that may be used. A brochure shall be provided describing the hazards existing outside the permit area, locations of hazards, and safety tips.

4. Gates and Signing

a. Boundaries will be marked in accordance with approved standards.

b. Gates that provide access beyond the ski area boundary will be designated by the Forest Service and will be marked as follows:

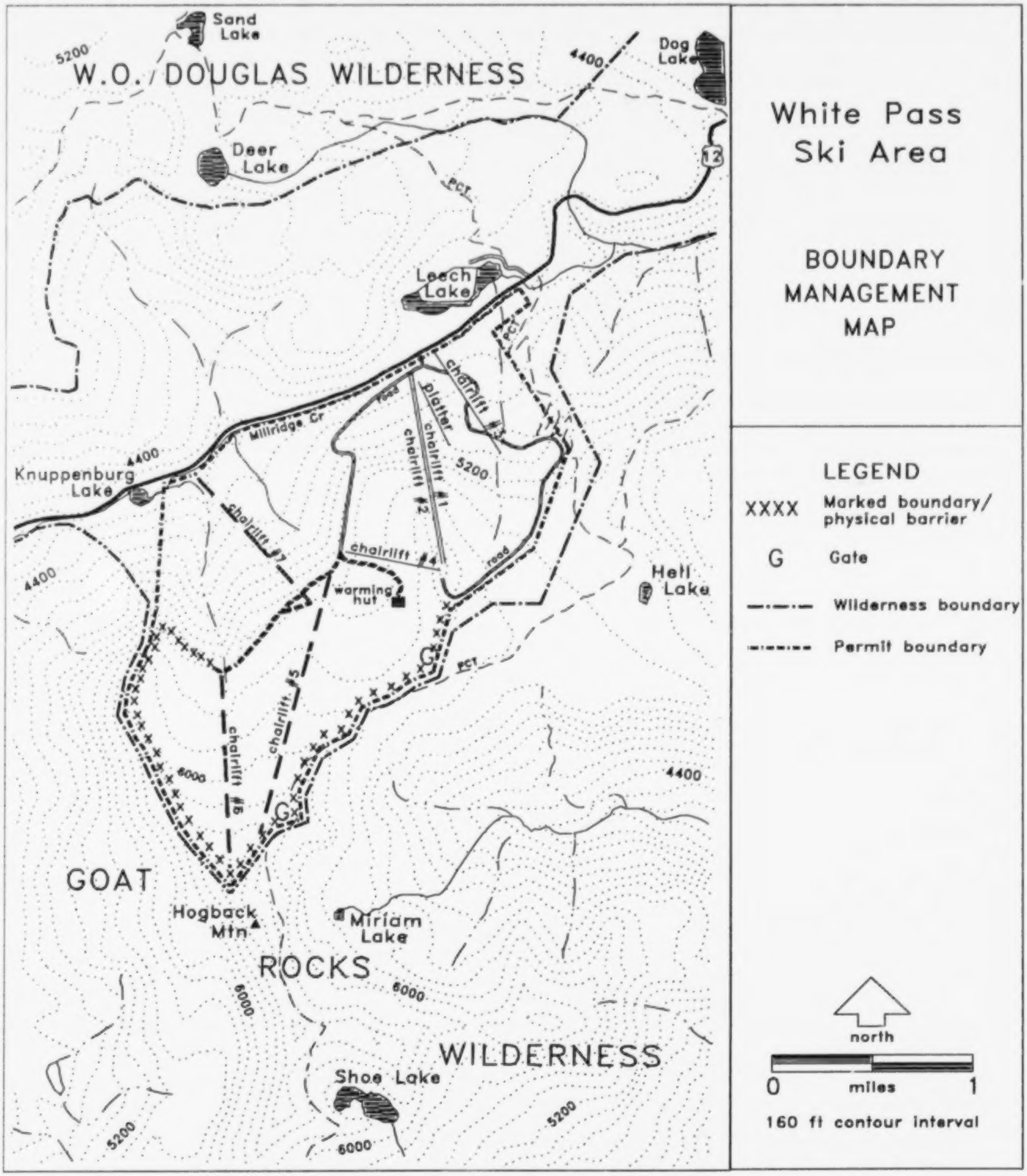
By a large sign that gives the Forest Service's instructions for leaving the boundary and information about any potential avalanche hazards that may exist beyond the boundary. This sign will also explain the reasons and rules for periodic closures of the gate that may occur.

If the gate is closed, it will be closed by, or at the direction of, the Forest Service and will have the standard closure sign on it.

Additional information may be provided for skiers at the access points by the ski area, if desired.

5. Access to Areas beyond the Ski Area Boundary

The intent of the Forest Service is to provide skiers the opportunity to use an areas's lifts for safe access to the backcountry. The access points to areas beyond the ski area boundary will be designated by the Forest Service in the boundary management section of the operating plan.


Sand Lake
5200
W.O. DOUGLAS WILDERNESS
4400
Dog Lake
Deer Lake
12
PCT
Leech Lake
chairlift #3
platter
road
Millridge Cr
4400
Knuppenburg Lake
chairlift #2
chairlift #1
5200
chairlift #7
chairlift #4
road
warming hut
Hell Lake
4400
G
PCT
chairlift #5
chairlift #6
6000
4400
G
GOAT
Hogback Mtn
Miriam Lake
ROCKS
6000
6000
WILDERNESS
Shoe Lake
5200
5200
6000
White Pass Ski Area
BOUNDARY MANAGEMENT MAP
LEGEND
XXXX Marked boundary/physical barrier
G Gate
Wilderness boundary
Permit boundary
north
0 miles 1
160 ft contour interval

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